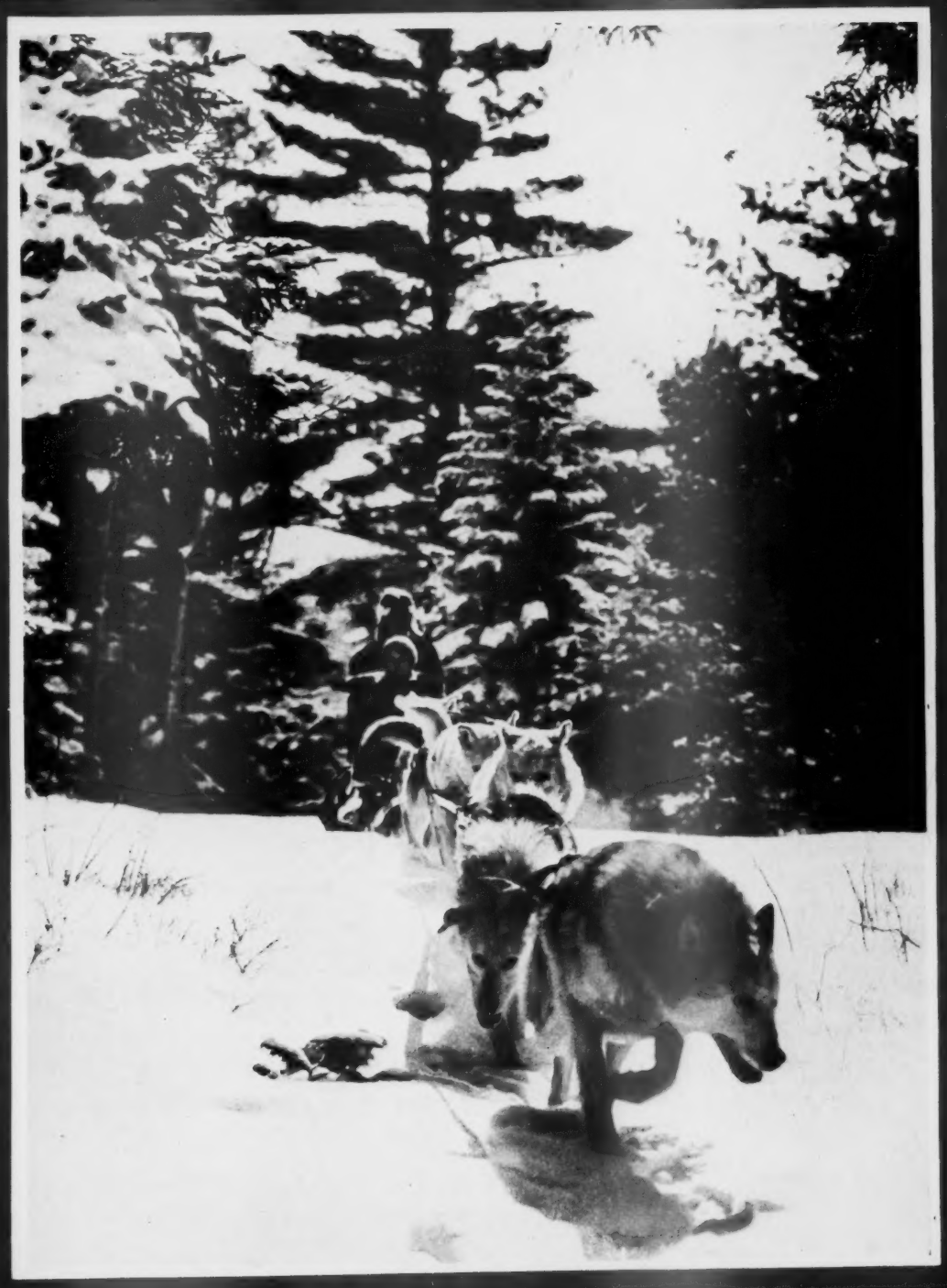
American FORESTS



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AMERICAN FORESTS

Vol. 38 JANUARY, 1932 No. 1

The Bridge of the Gods

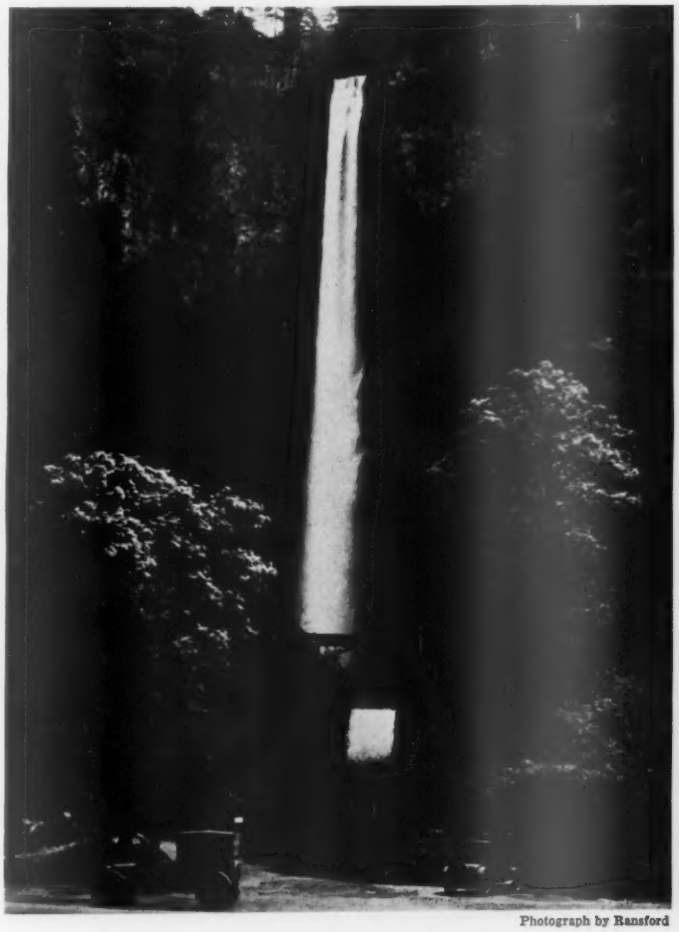
The Mystery of the Great Natural Bridge Indian Tradition Says Once Spanned the Columbia River at the Cascades in Oregon

By J. NEILSON BARRY

A RUGGED ridge of stone pierced with a wide arched tunnel, through which mighty waters flowed—a great natural bridge—spanned the Columbia River in the Oregon mountain wilderness. The bridge was covered with stunted pine and underbrush growing in every nook and crevice; and across it rode Indian horsemen with plumed hair and rude lances. And to these Indians, the tribe of Williamette, it was a symbol of power, of unseen might.

And they gave it a name *To-mah-na-wus*, meaning supernatural, and called it the Bridge of *To-mah-na-wus*. In the language of the white man it became known as the Bridge of the Gods. The tides reached up the river for miles above the great gorge it spanned, and braves for centuries paddled their canoes through its narrow channel.

This, of course, is the story the white man recites as a legend of the red man. For since the first white man viewed the mighty Columbia and traversed its course the sight of a great natural bridge spanning it has never been recorded. But the tides no longer reach deep into the wilderness, and no longer can one paddle a canoe through the great gorge. As a matter of fact, according to the Indians, something has happened to the gorge, now known as the Cascades of the Columbia. And what happened, the red men will tell you, is that the great Bridge of *To-mah-na-wus* which rose in a rainbow arch across the gorge, crumbled before some violent upheaval, perhaps an earthquake or a volcanic eruption. And the Indians will further tell you that with it was crushed the domain and power of their race.



Photograph by Ransford

In the gorge of the Columbia—land of mystic Indian legend—the Columbia River Highway passes many beautiful waterfalls.

That there is some basis for the legend of the red men concerning the Bridge of the Gods is granted by students and geologists. First, they point to the two great abutments in the Cascades between which the bridge was supposed to have been suspended, and there is the testimony of a multitude of travelers describing a submerged forest, the remnants of which still exist, that resulted from the backing up of the water of the Columbia when the bridge crumbled, damming the gorge. Further, the geological formations in the Cascades demand certain explanations and provide others.

While the legend differs in detail when told by various tribes and groups of Indians it holds its funda-

Photograph by Ransford

Mount Hood, in Oregon, near the Cascades, lifts towering majesty to the sky. It was named for Admiral Samuel Hood, in 1792.

Photograph by Ransford

The western portal of the great gorge. The Cascades are just beyond Beacon Rock, which is seen protruding above the point near center. This is where the bridge of legend was supposed to have spanned the Columbia.

mentals well. Practically every version, every story, concludes that the great Bridge of *To-mah-na-wus* fell during violent activities of three neighboring volcanoes. There is not even a hint of impossibility or improbability in this for within a century ashes from Mount St. Helens have been carried a hundred miles or so, and the multitude of pleasure seekers who annually climb to the summit of Mount Hood warm themselves amid the eternal snows in the sulphurous vappors issuing from fissures above the slumbering fires within. In fact, in every part of this region are evidences of violent volcanic activity on a stupendous scale. The very Cascade Range itself, upwards of a mile in height and hundreds of miles in length is of recent geological origin, it having been caused by a folding of the crust of the earth after the present basin of the Columbia River had been formed.

The range rose directly over the course of the river which gouged its way across it just as a beaver gnaws a log. Along the sides of the great gorge which the river had cut may be seen today the marks of water and gravel deposits on cliffs which tower thousands of feet above the present surface of the river. As though to leave evidence of its power to wear

"THE BRIDGE OF THE WAUNA, THE BRIDGE OF THE GODS."

This is an artist's reconstruction of the great natural bridge that Indian legend tells spanned the Columbia River at the Cascades. The Indian romance pictures it as "a great natural bridge, a rugged ridge of stone pierced with a wide arched tunnel, through which the waters flowed, extending across the river. It was covered with stunted pine and underbrush growing in every nook and crevice; and on it were Indian horsemen with plumed hair and rude lances." It was a symbol of power of the Williamettes, and "when the bridge was broken by volcanic earth trembling, the dominion of the Williamettes was broken forever."

through the hardest rock the river has left a multitude of tiny islets which now stand like cigars on end, huge monoliths from one hundred to one thousand feet in height, and in one particular case fifteen hundred feet. These add a picturesque charm to the awe-inspiring grandeur of that mighty chasm. The streams flowing into the river have to do so by a succession of cataracts, boiling and foaming in feather-like masses of spray from the cliffs.

The enormous power of the Columbia is due to the fact that its sources are along a vast circle of mountains in seven states and in Canada, draining a basin of 260,000 square miles. Each of the many tributaries plunges down a succession of rapids to join the main stream, which for ages had been wearing its way through solid rock. Where it has cut through the summit at the great gorge are two peaks 3,000 feet in height, between which the river flows in a channel so deep that the ocean tides throb and pulse in the center of that mighty mountain one hundred and fifty miles from the Pacific.

Here was the scene of the mighty Bridge of the Gods, as the Indians tell it in their traditions. And, strangely enough, there are many of the white brotherhood who believe just as firmly as the tribesmen that the river could be crossed without "wetting a moccasion." The geological formations in the Cascades show that there are no obstructions in the Columbia other than the place where the bridge is said to have fallen, while above, the river is now like a long narrow lake with every evidence of having been recently formed. According to many versions the blocking of the river caused it to become so angry that it spent its wrath upon the inoffensive Indian tribes residing in the vicinity of The Dalles, causing them to flee into the hills. Furthermore, it stopped the flow of water over Celilo Falls. This would seem to mean that the river was entirely blocked and the accumulated waters formed a lake of considerable magnitude. Also it would have prevented the annual spawning of salmon in the upper river and its tributaries so that the deprivation of the Indians of their chief source of sustenance would easily explain why the memory of that calamity should linger among them.

It is certain that the river was flowing normally in 1792 when Lieutenant W. R. Broughton, of the Royal Navy, made a survey of the Columbia 114 miles from the Pacific. He learned, too, from an old Indian chief that the falls of the Cascades were very severe. Thus, at that early date, the first definite record, the Bridge of the Gods had fallen, if indeed. the stories of the red warriors were true, and the river had already cut its way across the obstruction.

Thirteen years later the expedition of Lewis and Clark passed down the Columbia and found Celilo Falls, just as it appears today. They also found the river pouring through the narrow fissures in the solid basalt at The Dalles, where like a liquid tornado the waters seethe and writhe in the chasm with such energy that no plummet can reach to its bottom. Above The Dalles for fifty miles to the Cascades they found the river much like a lake, as though recently dammed. The forest trees which had grown along the former banks of the river were standing upright in thirty feet of water, with the wood still firm and sound. Lewis estimated that the event leading to the obstruction which had dammed the river could have taken place but twenty years previous. This would place the date of the falling of the bridge in 1785, although other evidences indicate 1773.

The famous submerged forest of the Columbia was frequently described by other early travelers. Even after the water subsided the boles and stumps continued to attract attention and for fifty years they remained visible. Today only a few stumps can be seen and these at low tide.

Between the time that Lewis and Clark passed down the Columbia and their return the following year, a white trader from a ship, probably in Gray's Harbor or Puget Sound, made his way to the Cascades. He brought back about the same information concerning the great gorge and the Cascades as had the others. He left some hardtack with the Indians which was proudly displayed to Lewis and Clark, who in turn presented the chief of the tribe with a medal. This is still preserved by one of the descendants of the chief and is undoubtedly the only evidence of that famous expedition now existing in the State of Washington.

Since the obstruction at the Cascades was the only place on the Columbia where it was necessary to make a portage between The Dalles and the Pacific, there is a large literature of experiences of travelers, and many were the lives lost in attempts to descend the rapids. As the country was settled and the rich mining regions of the interior opened up an enormous traffic developed on the river. Steamboats were used below and above the Cascades while crude railroads were built along the side of the gorge to connect the upper and lower landings. Today a steel suspension bridge swings across the chasm and a highway and a transcontinental railway ribbon above it. But all around stretches a great wilderness, practically the same as when the Indians paddled their canoes through the impressive silence of this vastness and, if their tradition is to be accepted, gazed in wonder upon *To-mah-na-wus*, the great natural bridge of the supernatural.

Solving the riddle of the Bridge of the Gods has been pretty much that of finding the explanation of natural questions. For instance, what has become of the immense mass of rock which is said to have fallen? Search of the many hills proved that all were composed of a conglomerate of gravel and clay. There was no vestige of the remnants of the rainbow-like arch said to have once extended between Wauna Peak and Table Mountain, which tower 3,000 feet above the river. The fact that they are nearly five miles apart makes the idea that they were the abutments of the bridge very fascinating. The stupendous weight of such a bridge would require a monolith of very great thickness, and if it had fallen there would be fragments on the ground. There are scattered patches of basalt but across a wide expanse there is nothing but a uniform conglomeration of gravel, sand and clay, forming an uneven plateau which rises abruptly above the river on the north side and slopes upward toward the lofty summit of Table Mountain. The grading for the railroad and the highway exposed the strata, showing that for two hundred feet the deposit was made when the land was submerged and the ocean filled the gorge. It was entirely obvious that there had never been such a bridge as is supposed, for on the summit of the hills hundreds of feet above the river are pebbles left in ages past.

One peculiar phenomenon is that scattered throughout this irregular mass of hills are innumerable depressions, or sink holes. Many are lakes, a hundred feet or more in depth, and most of them have no outlet, yet maintain their level from the abundant rainfall of the vicinity. Since all of these lakes are near the river and above it, the conglomerate cannot easily be permeated by water.

When a canal was blasted through the solid rock alongside the highest cataract it was shown that the river flows over a ledge of basalt which forms the lowest foundation of the Cascade Range. It is evident that the ledge must have been at least twenty feet above the bottom land on which the forest grew in earlier years, and that the river could not have flowed along its present course. Yet the old gravel must have been deposited many *(Continuing on page 60)*

The National Forests exemplify successful forestry practice,—an example urgently needed in the East, says Professor Chapman in the following article, in driving home his argument for more and better publicly-owned forests.

PUBLIC OWNERSHIP OF FOREST LAND

The Functions and Responsibilities of the States and the National Government

By H. H. CHAPMAN

FOR over thirty years I have believed and urged that the public ownership of large areas of forest land is as necessary in the East as it has proved to be beneficial in the West, where today seventy-four per cent of all forest land is in permanent public ownership by popular approval. It will probably never be possible to acquire, from the much larger Eastern area of forests, more than an ultimate maximum of public ownership of between twenty-five and thirty-five per cent, nor should it be necessary to do so. But compared with the present four per cent, which includes all national, state and other public possessions, the margin for expansion is enormous.

Why should the states and the National Government expand the policy of land purchases in the East? First, because it is the only promising substitute proposed for the much discussed program of forcible regulation of private forest operations in an effort to compel forest owners, especially lumbermen, to reforest their lands—a program which in the present economic stage of forestry, under existing political conditions within the states, has practically no hope of accomplishing any tangible results for an indefinite future period, even if it were based on practical possibilities. Dr. B. E. Fernow, the first forester to be appointed head of the United States Forest Service, then the Division of Forestry, in the Department of Agriculture, said in 1886: "It is not the control of government over private property that has produced desirable results upon private forestry abroad, but simply the example of a systematic and successful management of its own forests."

Example is better than precept. Despite the late start in the eastern region, some notable instances of successful public forestry may be found where large scale operations are demonstrating the possibilities and methods of reforesting waste lands. The Chippewa National Forest, in Minnesota, is a case in point. This area constitutes an oasis of young pine in a desert of burned scrub. The State and National Forest plantations of Michigan are pointing the way towards rehabilitation of the pine barrens of that region.

In Louisiana, I watched for fifteen years the possibility existing in a tract of cut-over pine land north of Alexandria, where early logging had left numerous small trees that had developed into seed trees. The practical possibility of reforesting that area with longleaf pine consisted of keeping fires out and fencing against hogs. The owners were not interested, but instead, sold the remaining seed trees for poles. Their cutting would have finally and completely ruined the area. At this juncture the United States Forest Service acquired part of this area for a National Forest, and bought back the seed trees. The land has by this action been converted from a future waste into a potential young forest. Private owners could have done this if they had desired, but they did not. One operator, Henry Hardtner, of Urania, has about 5,000 acres of longleaf pine under fence and has demonstrated the possibility of securing successful reproduction. The remainder of the longleaf area west of the Mississippi in this State has for the most part been completely denuded.

Examples of successful forestry practice are urgently

needed everywhere in the East. It is certain that National Forests will furnish such examples. State forests, if placed under trained technical management, free from political influence, are the next best bet.

The second reason for the extension of public forests lies in the rapidly increasing demands of the public for the preservation of the inherited tradition of free access to the wilderness. America's is a pioneer inheritance. The health and mental vigor of its best type of manhood demands recreation in the form of reversion to type, renewal of youth by roughing it, fishing, hunting and camping. A nation, in order to develop along sound lines of evolution rather than fall a prey to violent and uncertain changes, must keep faith with its past, and grow from that to something better.

The instinctive recognition of the need for preserving our wilderness areas, free for the use of all, is strikingly shown by the enormous pressure behind such movements as the Great Smoky National Park, and the Adirondack Park, in New York, with its area recently extended to include over 4,000,000 acres, in the heart of one of the most populous states in the nation. It is the plain mandate of the people to secure and preserve these hereditary and traditional rights. They will never forget, nor be content with cramped artificial substitutes as long as they retain their American spirit.

To the extent that the wilderness still exists in fact by the accepted customs of permitting hunting and trespass on woodlands, free of all restrictions by the owner, the need for public ownership lies dormant. But as soon as the private land owner tires of the situation, posts his lands, keeps a dog, and asserts his property rights, some practical and statesmanlike plan must be substituted for a primitive arrangement which is outgrown.

Extensive areas of mountain and forest land are required for these purposes. Contrary to popular belief, these large areas should not be created as parks, but as forests. There are outstanding reasons for this decision, based on experience both in this country and abroad. In parks, the policy must be to prevent and prohibit all economic use of the resources. The entire property is carried for all time as a dead load on the taxpayer, for the sole purpose of recreation. Such a policy would forever limit the extension of publicly owned areas to the burden which could thus be carried.

The real objection to an exclusively park development, however, is that it is for the most part entirely unnecessary as a means of satisfying the desires of the public. The demands for recreational use can be almost completely satisfied by a segregation and preservation of lake and stream frontage and of belts of timber bordering roads and trails, and in the remaining area, which is seen only by the hunter or woodsman, the land can be used for the growing and harvesting of timber crops.

This system has been in practical use on the Chippewa National Forest since 1902 and has given complete satisfaction to tourists and townspeople alike, who after the original exploitation of the timber have seen industry restored by the growing and cutting of new crops of pine on these forest lands. The same system is in force in the White Mountain National Forest, in New Hampshire, where the recreational interests are probably as important as anywhere in the East. In many inaccessible regions, logging will never be profitable and wilderness areas can be set aside for camping and hunting.

The outstanding advantage of the system of public forests over that of public parks as a general land policy lies in the fact that public forests will become not only self-supporting, but will produce large surplus revenues for the support of roads, schools and other communal needs while parks remain a financial liability forever. Parks should therefore be relatively small in size, located at points of unusual scenic interest and confined to the areas whose preservation justifies their cost. There is no such limit to the extension of public forests.

So thoroughly has this fact been learned in Europe that the areas of these forests, national, state and communal, vary from twenty to thirty-five per cent of the total forest areas of the more progressive nations such as France, Germany, Switzerland, Norway, Sweden and Finland; while Great Britain is now engaged in purchasing and planting 1,770,000 acres of land to bring her public holdings up to an adequate percentage. No European state could afford, or would dream of curtailing the full economic use of her forest resources with the purpose of creating a mecca for tourists, and this for a very simple reason; they learned centuries ago that they could eat their cake and have it too. Switzerland exists largely for tourists, yet every acre of forest is under management for crop production and is cut and utilized when ripe. Under this system, they have better forests to show. That is the only difference. Actually, America's substitution of the wilderness sentiment, shown in the locking up of large areas as parks, for the practical policy of public forests devoted to all forms of use coordinately, is merely another thoughtless and instinctive gesture based on prodigality born of the wilderness itself. America has abundance—why economize? She can afford it, why be parsimonious?

But the country cannot afford it. Sentiment not based on sound economics may yet bring it to bankruptcy. Tennessee, which has failed to provide an acre of state forests, enthusiastically raises over a million dollars to buy the Great Smoky Park and present it to the nation. Virginia, aided by private subscriptions, does likewise with the Shenandoah, in each case paying prices several times as high an acre as the average cost of lands for the National Forests, which have so far cost but $4.50 an acre for acquisition. To eat their cake and have it too—to spend money for public needs, and have it come back to them fourfold, meanwhile enjoying all the tangible benefits of the expenditure, in the form of wilderness areas; this is what the policy of public forests offers on the basis of cold facts and world-wide experience.

Once the benefits and need of public forests are recognized, the question remains as to the agencies best fitted to acquire and manage them. Financial resources come first, followed by ability to provide competent management. Although a few states like Virginia and Tennessee are induced by public sentiment to spend large sums for National Parks, yet on the whole, any large extensive policy of land purchase for public forests is going to prove very difficult to put over in states whose taxable resources are low. The greater the dependence of the state on revenue derived from forest property and forest industries, the less the likelihood of securing large appropriations for public forests after these lands are denuded and the industries wrecked and driven out. It does no good to try the ancient game of land inflation. That bubble burst in Florida and has left a trail of debt that is a most severe handicap on legitimate development. In the long run, inflations and booms are worse than pestilence, as the nation is learning today. Lands which have a sound economic value for agriculture will be used for that purpose, but cut-over pine lands not required for crop production cannot be saved from going tax delinquent by violent efforts to delude the public into a belief in values which are economically non-existent.

States with great areas of cut-over lands have a problem too closely resembling that of raising one's self by one's own boot straps. The lands, if forested again, will ultimately be restored as producers of wealth, but can the state buy and reforest these lands? One thing is fairly certain. Private owners alone and unassisted will not assume sufficient initiative over a large enough area to offer an adequate solution of the idle land problem. The states, instead of bonding

themselves for parks, or running wild on road construction which will saddle them with huge maintenance charges, interest, and reconstruction costs forever, should seriously consider the desirability of devoting a portion of their revenue to the rehabilitation of one of the major sources of their prosperity and industry.

The ability of different states to finance public forest acquisition differs widely. It may be expressed in terms of the assessed value of taxable property per square mile of state area, or even better, by the total assessed value of taxable property within the state, including both forest and farm land, city and other property, to be divided by the net area of forest land in the state. Whatever the state does in the way of spending public money for land purchase and rehabilitation, the income is drawn proportionally from all the taxable resources of the state, of which the total assessed value of taxable property is an approximately accurate comparative measure, for different states.

On this basis, it is found that certain states in the Northeast have an extremely high tax base, running from $500,000 per square mile of total state area up to $1,500,000, and for net forest area from $1,000,000 to over $3,000,000 per square mile. The states with the largest tax base are in turn those states which have shown the greatest desire and ability to provide their own public forest areas, as shown by the following data:

State	Assessed value per square mile of total area (thousands of dollars)	Assessed value per square mile of forest area (thousands of dollars)	Area of forests publicly owned acres	Per cent of forest area so owned
New York	753	1,896	2,453,828	20.2
Pennsylvania	639	1,410	1,591,988	12.2
Massachusetts	1,570	3,184	245,094	9.7
Connecticut	1,065	2,072	69,520	4.4
New Jersey	1,434	3,447	87,184	4.3
Maryland	324	928	40,116	1.8
Average	964	2,156		

In none of these states except Pennsylvania, and there only by special arrangement, has the National Government been asked to locate public forests, nor is there any need for it.

With most of the remaining forest states, excepting Illinois, Indiana and Ohio, the situation is quite different. Instead of possessing a tax base of over a million dollars per square mile of forest land, the values in these states often drop below $50,000 a mile for the total area and below $80,000 a square mile where the total tax base is divided by the net forest area in the state. The average values for the three lake states, Michigan, Wisconsin and Minnesota, are, per total area, $146,000 a square mile, and per net forest area, $308,000 a square mile, thus reducing their average capacity to about one-seventh of that of the six states cited above.

The remaining Northeastern states, Maine, New Hampshire, Vermont, West Virginia, average, per total area, $122,000 a square mile, and per net forest area, $178,000 a square mile, or about one-twelfth of the capacity of the six favored states.

The group of Southern states comprising Virginia, Kentucky, Tennessee, North and South Carolina, Georgia and Alabama, all of which contain inferior mountain lands, average, for total area, $83,000 a square mile, and for net forest area, $158,000 a square mile, or about one-fourteenth of the capacity of the forest group.

The group of Southern states including Florida, Louisiana, Mississippi, Texas, Missouri, Arkansas and Oklahoma, average, for total area, $64,000 or the forest group average, for net forest area, $220,000, a somewhat higher average than the two preceding groups, due to the enormous nonforested area of Texas, and the high agricultural value of portions of Missouri and Oklahoma. On the basis of net forest area, the capacity of this group is about one-tenth of the first group.

The Ohio Valley group comprising Illinois, Indiana and Ohio, with its high agricultural values and restricted area of forests, shows averages per forest land even higher than the Eastern group, namely, for total area, $362,000 a square mile, and for net forest area, $3,044,000 a square mile.

By comparison with these Eastern groups, the eleven states lying west of the Great Plains and comprising the entire Western portion of the United States, which contains forests, show remarkably low averages, namely, for total area, $29,000 a square mile, and for net forest area, $226,000 a square mile.

In these states, the total wealth a square mile is less than half that for the lowest Eastern group. Even when concentrated on the forest area, which is less than eight per cent of the total, the tax base is not raised to more than the average of the Eastern region as a whole. This fact affords an explanation of the willingness of these Western states to permit and even encourage the further acquisition of National Forest land which already totals, with other public lands, nearly seventy-five per cent of all forest areas in these areas.

It is in these relatively less wealthy states that the program of public forest acquisition should include National Forest purchases as an integral part of the policy. The national program can be advanced more promptly and efficiently than can the alternative of state purchases. Many of these states have yet to be convinced of the need or soundness of expending state money in buying forest land, preferring, unconsciously, to have to take this land as a gift, through the devious route of tax delinquency and economic ruin. There are state officials, some of them foresters, who ought to know better, who drift with the tide and oppose the spending of state money for forest acquisition on the obsolete grounds of "state socialism."

The establishment of numerous large areas of National Forests will not only encourage private forestry, but by example of efficient management and fire protection it will offer the strongest incentive to the building up of better state forestry departments and the acquisition of state forests, as has been demonstrated in Minnesota. Conflict between the aims and purposes of national versus state acquisition is largely imaginary. It is settled by agreement upon the boundaries of the national purchase units, within which the Forest Service wisely confines its purchases. With a total area of but 15,000,000 acres in public ownership East of the Rockies, out of an actual forest area of 380,000,000 of acres, there is no possible chance of acquiring too much public forests for half a century, despite the utmost efforts of the combined forces of national, state and local agencies. The most urgent problem in land economics today is this need for increased public holdings of forest land. It is the only practical solution of the menacing delinquent tax land problem, as has been demonstrated in Pennsylvania. It will secure for future generations the priceless heritage of the "wilderness" or free access to open public areas. It will ultimately prove a bulwark of state finance, producing not merely direct revenues, but adding from ten to twenty times the value of the stumpage in the form of industries dependent, as today, upon the forest. Finally, as Dr. Fernow pointed out in 1886, it will prove the most efficient and practical measure for bringing private owners of the vast remaining areas of forest land to the attitude of voluntary adoption of the practice of growing timber upon these lands. Let the people as a whole show their interest and willingness to share responsibility for forest production by creating public forest areas, and private owners may be expected to respond with greater assurance.

The Snowy Egret

By ALFRED M. BAILEY

Chicago Academy of Sciences

MANY seasons have passed since I visited my first heronry along the shores of the Gulf of Mexico. I had hoped to find the nests of the snowy egret—birds which had become woefully few, due to the demand for their plumes in earlier days—and a native of the region had offered to show me a few pairs nesting in the willows bordering a clump of cypress off in the marsh. From a distance, the large trees, silhouetted against the blue sky, looked not unlike palms, and the warmth of the water underfoot, the tangle of sawgrass and marsh vegetation through which we tore our way, and the cheerful drone of mosquitoes aided in the delusion that we were in the tropics.

It was not a long journey to our heronry, and we found several nests with half-grown pinfeathery youngsters which greeted us with startled squawks, and excited jabs with their soft beaks. The nests were from six to eight feet from the water, and were rather fragile affairs for such large young ones. A few old egrets circled wildly overhead, frightened by the invasion, and other nesting birds from the tall cypresses sailed out to investigate. Long-winged, long-tailed, and

AT THE AVERY ISLAND SANCTUARY IN LOUISIANA, WHERE THE SNOWY EGRET - - KNOWN AS THE "BONNET MARTYR" - - NOW LIVES IN PEACE AND SECURITY, PROTECTED BY LAW

MOST BEAUTIFUL OF ALL MARSH BIRDS, THE SNOWY EGRET IS FOUND BREEDING IN THE UNITED STATES FROM SOUTH CAROLINA SOUTHWARD ALONG THE COAST AND THE GULF OF MEXICO

THEY ARE COLONY NESTING BIRDS AND THE NESTS WERE FOUND IN CLOSE PROXIMITY - JUST BEYOND A JABBING DISTANCE. THIS MOTHER BIRD IS ABOUT TO RESUME HER BROODING DUTIES

BEFORE SHE SETTLES BACK DOWN ON THE FOUR PALE BLUE EGGS, SHE MUST HOVER ABOUT TO MAKE SURE THAT THAT NO INTRUDERS HAVE BEEN THERE AND THAT EVERYTHING IS JUST AS SHE LEFT IT

long-necked anhingas floated along gazing curiously among the willows; big blue herons squawked disconsolately; little blue and Louisiana herons rushed by hurriedly, and clapper rails hurled invectives from the surrounding reeds. All in all, it was a delightful time for a northerner, in spite of the heat and the decaying vegetation. Our friend, the marshman, could see nothing to enthuse about; he saw nothing there but some pot-bellied young birds which were not good to eat.

There are two egrets in North America, the large American egret, with long, straight plumes upon the back, and the snowy egret, which is only half the size of the former, and has delicate plumes which are recurved at the tips. Both birds are now becoming common, while thirty years or more ago they were nearly exterminated by plume hunters who killed them by thousands for the much prized "aigrettes." But it was the snowy heron I was searching for—a bird which had been described as the most beautiful and graceful of all marsh birds.

It is found breeding in the United States from North Carolina southward along the Atlantic coast, all along the Gulf of Mexico, and from Great Salt Lake southward. There appears to be two forms in the United States, *Egretta thula thula* being found east of the Rocky Mountains, while those of the western United States are *Egretta thula brewsteri*, the western birds being slightly larger in size. They are colony nesting birds, many pairs usually associating with water birds of other species; the birds of various regions adapt themselves to local conditions. In Louisiana, the nests were found in cypresses and willow trees and in button bushes, while in Texas they were discovered in the prickly pear cactus and in low huisache trees. In Utah they usually build their frail platforms in the tules and canes.

Last season I returned to Louisiana to make motion pictures of animal life for the Chicago Academy of Sciences. Ten years had passed and a great increase in the number of marsh birds was noted. Herons of several species were ob-

THE FULL NUPTIAL PLUMAGE IS GORGEOUS. THIS IS WHEN THE ADULTS ARE AT THEIR BEST. THE GLEAMING WHITENESS OF THE RAISED CREST AND SCAPULAR FEATHERS MAKES A PERFECT PICTURE AGAINST THE DARK SHADOWS

THE LATE DR. FORBUSH OBSERVED A GROUP OF THE BIRDS ONCE IN A FLORIDA SWAMP DURING COURTSHIP MANOEUVERS AND DESCRIBED DELIGHTFULLY THE WAY THEY STRUTTED ABOUT, RAISING AND LOWERING THEIR DELICATE, LACE-LIKE PLUMAGE, BOWING AND COMPLETELY ABSORBED IN CHARMING ONE ANOTHER

served commonly in places where none were seen in other years, and snowy and American egrets in large flocks were not uncommon. There is one place in the South which stands apart from other places, and that is Avery Island, which we made our headquarters, occupying a little cabin on a hill. It was a picturesque spot, for through the moss hung trees we could see a little artificial lake grown with willows and button bushes, and from our cabin each bush seemed crowded with white blossoms—but, occasionally, one of these light spots would rise from its resting place and sail away on immaculate wing. We were looking upon one of the most interesting examples of conservation in the world, for the white birds which were crowding the bushes of the pond were the beautiful plume birds, the snowy egrets. Thousands were nesting and rearing their young.

Many other species of birds inhabited the sanctuary, among them being Louisiana, little blue, and little green herons, anhingas, and gallinules. The shores of the pond are lined with willows, button bushes, gardens, and a bamboo thicket, and on one side, within thirty feet of nesting birds, is a spur of the Salt Mine Railway. The herons often refused to rise from their nests when the trains passed.

The history of Willow Pond, as the preserve is known, is an interesting one. A small creek formerly meandered between the Avery Island hills, but when the heronry was started the stream was dammed making an artificial lake. Then the owner, E. A. McIlhenny, searched the nearby marshes until he found several nests of snowy egrets. The young were taken to Willow Pond and kept in captivity during the summer. Mr. McIlhenny visited his egrets daily, fed them from his hands until they became very tame, and then, in the fall, liberated them. They remained a few days, flying back and forth over the pond, but returning to the cage to roost. At last, they disappeared, one by one, and were seen no more until the following spring. A few returned in April, built their nests soon after, and reared their young in safety, and, as year followed year, they and their young returned. Other species joined the snowy egret and now the pond has all the nesting birds the bushes will hold, and those that find conditions too *(Continuing on page 46)*

A PURELY DOMESTIC SCENE--THE YOUNGSTERS BEG FOR FOOD IN NO UNCERTAIN TERMS AND IT IS DISTINCTLY UP TO THE PARENT TO PRODUCE

APPARENTLY THE DEMAND FOR FOOD IS BEING FULLY MET! SOMETIMES THE PARENT BIRDS FLY OFF AS FAR AS TWENTY FIVE MILES TO SATISFY THE DEMANDS OF THEIR VORACIOUS YOUNG FOR FOOD

KINGTOWN PEGASUS

By
CHARLES G. WILSON

"YISSAH! When it come time in the mawnin' fer me to go to work, an' me a leetle mite lonesome, I'd stop by the brook an' call"—here he emitted an inimitable noise, a cross between a cowcall and an Indian whoop—"an' in jest a second Phineas would stick his little bullet shaped nose out of the water. Thar he'd stand on his tail treadin' water with his front fins an' givin' me the once over. 'Come, Phineas,' says I, 'we're goin' down to the South Forty this mawnin', an' that trout would teeter there a second a-takin' it all in, an' all to a suddent he'd give one jump into the air an' come down on the grassy bank balancin' on his tail, his fins outspread like the arms of a tight rope walker. I'd take up my tools an' we'd start, that cute little critter of a fish walkin' right beside me on the tip of his tail with a skip an' a double shuffle, like a frisky kid on a frosty mawnin'. As we walked along I'd be a-talkin' to him all the while, askin' him where he'd been an' if he thought the brook'd hold its right level durin' the hot weather, an' how all his relations was. Then when we'd reach the South Forty I'd stoop down an' he'd spring up into the palm of my hand and stand there upright on his tail fin, the slickest little bronze figger, all spotted with green an' scarlet an' pink, a-glistenin' in the early sun. 'Blesséd day, Phineas,' I'd say, an' hold my hand out over the little pond that lies on the edge of the Forty where it meets the forest, an' he'd give a flip an' dive into the water so straight that there'd be nary a splash. He'd go about his business an' I'd tend mine, an' all through the day I wouldn't see any more of him than once or twice his little bullet nose above the water pokin' up to see what I was doin'. But at quittin' time I'd take up my tools an' go over to the pond and give him a call, an' he'd spring out on the grass jest like he did in the mawnin', an' together we'd walk home down the windin' path in the cool of the evenin'. When we reached the place near the house where the brook runs alongside I'd hist him up on my hand an' he'd stand there for a second poised like a ballet girl on her toes, an' then zip! into the brook he'd go."

Old Zeke Saltoon paused, the outspread palm of his right hand extended like a diving board. "Yissah, he was the cleverest little trout I ever knew," he concluded in his gentle whimsical drawl.

"What happened to him, Zeke?" I asked, trying to draw him out.

He stared for quite a few seconds at the brass ball on the tip of a scarlet collar hame, which he had taken up and was holding with the dignity of Royalty holding a sceptre, before he answered my query. "Thet, suh, as Mr. Kipling says, 'is another story,' " whereupon he lapsed into silent contemplation of his shoepacks, each of which rested in a puddle of water caused by the melting of the snow they had brought in from the December night.

Eight or ten of the village elders of Kingtown were gathered together in the harness shop of Arthur Goodfellow in that Saturday night assembly, wherein they had grown to make it a habit to meet informally and discuss in caucas things political, philosophical, and sociological pertaining to the life of the little Maine village. Non-Yankee as I was, and a "city fellow" at that, a type to be looked upon with mild suspicion by honest countrymen, I had been admitted lately to the assembly only after years of long continued pilgrimages to Kingtown and periodic but frequent residences in its midst. But I had begun to learn to make it a point to be a silent onlooker, for while I was tolerated with the utmost courtesy I was not accepted in so far as to have a voice in the council. Besides, when one of Zeke's tales fired my enthusiasm to the point of trying to draw him out my questions invariably had the opposite effect of causing him to close his shell like a Casco Bay clam.

The members of this naive folk assembly, perched on friendly chairs, worn and strained from much tilting back against the wall, on the broad counter polished to a high gloss by much use, were lumbermen, small shopkeepers, and farmers, representative of the best strain of New England rural life; lean, hard-muscled fellows with steady eyes and features creased and tanned by exposure to the open weather at all seasons; men with independent minds, devout believers in free speech, and preeminently picturesque in their backwoods garb of plaid smocks, fur caps, and moccasins. Facing this semi-circle, enthroned on a pile of new horseblankets laid against the wall, sat old Zeke Saltoon. By virtue of his patriarchal age and dignity, his wit and wisdom, this old country solon had been given by tacit consent the office of chief, or presiding elder; and his office became him as the purple one born to it. To him all questions were addressed, and while he pondered them there was free discussion among the members; but when his answer came forth the case was closed. Zeke Saltoon had spoken; the irrevocable edict had been given, and the case was closed. To see him ruling thus, wisely but despotically, though always kindly, seated high on his pile of orange horseblankets, the assembly grouped about his feet, unfailingly took me back

in fancy to the great hall of a mediaeval castle, where after the feasting the lord and master of the community sat on his great chair and gave judgment and took council with his warriors and retainers. Even the new harnesses hung on pegs on the wall behind and above his head, glistening with polish and brass studs, and the pendant harness plumes of blue or scarlet or orange hair, served but to enhance the illusion, taking on the aspect of trophies of the field and chase.

Now Zeke had a series of Munchausian tales which on rare occasions he told with such ingeniousness and conviction that, though contrary to nature and reason as they were, it was hard for the hearer not to come under their spell and believe them. One wanted to believe them, for they were so kindly, so romantic, so humorous; and when at last reason made one put away belief it was done with a sigh of regret, much like a girl office worker closing a book of tales of chivalry to stumble to her feet as the subway train thunders into her station, and her consciousness jerks swiftly from green fields and castles fair to the mundane operation of a four bank keyboard. Certainly old Zeke believed them. Any reference to their veracity brought Jovian thunder on the head of the doubter. During his half century and more vocation as a Maine woods guide he had told them around so many campfires so many thousands of times that the old romancer had actually, half-way at least, convinced himself of their foundation on fact. He had a knack of weaving a thread of romance through everything of which he spoke, and it was this quality more than any other that endeared him to his fellow men; for old Zeke Saltoon never looked on common things with common eyes.

Old Zeke had a knack of weaving a thread of romance through everything he told, and regularly held his audience spellbound.

When the tale of the walking trout had come to an end, and after each listener had drifted back to Main Street from Zeke's little fairyland of enchantment, the conversation grew desultory. At last the weather came up for discussion and the admirable open season of a protracted Autumn, always welcomed by these dwellers in a land where snow lay on the earth for a full five months a year, was spoken of. Two members of the assembly proceeded to fall into mild dispute about the precise date on which the scarlet foliage had begun to fall before north wind, and unable to agree, they put the matter before Zeke for adjudication.

He who had brought the subject up stated his case: "It was the day after that lady poet went back to Boston after her vacation. I was at the railway station gettin' some cow feed from the freight office. I seen her standin' on the platform with her little black travellin' grip in her hand lookin' up at the Abram Range. 'Good mawnin', Mr. Horn,' says she, 'good mawnin' and goodbye, fer I'm going up to Boston. An' I do so hate to leave them.' She waved her little hand at the mountains. 'Those scarlet maples are burnin' like torches, torches of hope, an' faith, an' beauty, an' they'll be burnin' in my heart until I come back next year!' I'd never heard anybody talkin' of rock maples like that before, but blest if they didn't look like torches come to notice it. I shook hands with her an' went in an' signed the waybill for the cow feed and had to look at the calendar to date it. It was the seventh day of October. Jest then the engine whistled out and I seen that gal standin' on the rear platform gazin' back at the mountains. Now the leaves fell off the next day, makin' the date the eighth."

The other disputant was equally certain of the date, though less picturesque in saying so. "I remember the day exactly. A soft rain had fallen the night before, makin' the leaves wet an' heavy. At dawn it cleared an' the wind swung round into the northwest. My mortgage interest came due that day an' as I walked to the bank the leaves were chasin' each other down the street in clouds, an' blowin' off every tree. I'm dead sure of the date on account of the mortgage interest; I've been well acquainted with that day for four years. It was October 9th."

They both fell silent and looked to Zeke. Without hesitation he spoke. "You're right, Ed," nodding at the man who had but just spoken, "the leaves commenced to fall the ninth day of October. Will here got his dates twisted when he got mixed up with poetry." He stroked his beard reflectively for a moment or two, and I saw the gleam come into his eye which betokened that his wit was roused and ready for a fresh conquest. "And Will, you're wrong on another point: the little lady poet never went back to Boston on the train."

Will looked bewildered. But though his Yankee word was questioned he restrained himself admirably and looked to Zeke with blinking eyes for the explanation.

Zeke took up the red hame tipped with a brazen ball, swinging it gently like a baton to punctuate his emphasis.

"On the mawnin' of October seventh I went down to the South Forty to git up the cows for milkin' as usual. It was early dawn before the sun had riz over the ridge an' a thin mist was curlin' up from the ground in patches, like smoke from a smoulderin' fire pretty nigh out, softenin' the outline of tree an' rock an' fence, an' blurrin' the background out in a haze. I stood at the gate a-callin' 'Sook! Sook!' an' when they commenced to come from under a grove of birches clear across the pasture I took notice they (*Continuing on page 64*)

THE FOREST LEGION CARRIES ON!

PHOTOGRAPHS OF AUTHENTIC BATTLE SCENES TAKEN FROM THE FRONT LINES BY THE AUTHOR

By CHARLES R. HURSH

THE LEGION IN ACTION. THE FORCES OF EROSION HAVE CAPTURED THE FIRST SECTOR WHERE THE LEGIONNAIRES WERE IN TOO OPEN A FORMATION, BUT THE ATTACK IS BEING BROKEN BY THE CLOSED RANKS OF THE PLATOONS AT THE REAR

A LONE LEGIONNAIRE SURROUNDED ON ALL SIDES BY THE FOE, BUT STILL BRAVELY HOLDING A HUNDRED TONS OF SOIL

ONCE the soldiers of the forest legion were encamped throughout all the land, on every hillside, in every valley. Night and day, year in and year out, they stood faithful guard over the earth's great treasure, the life-giving soil, from whence all living things obtain their daily food. Under sure protection the soil was safe from the marauding armies of the accursed invader — erosion. Centuries passed by but never did the forces of the plunderer break through the closed ranks of the forest battalions. Year after year the riches of the soil increased until after many centuries they became the finest treasure in all the world.

The grateful streams babbled unceasingly, as they wove into each landscape a pattern of beauty and loveliness, a pattern of crystal, and shadow, and silver. In the deep eddies, the wary trout, forever balancing appetite against caution, scrutinized every object that struck the water's surface. In the well-watered forests birds and wild life multiplied and flourished. All the while, the gallant legion, arrayed in gorgeous uniform sometimes of green, sometimes of yellow gold, stood confident and upright—proud of their heritage as defenders of earth's beauty and peace.

Into this harmonious scene, came the early settlers, rejoicing to see such fertile soil, such an abundance of wild life, such clear streams. "There is no end to the forest," they said, "It will last forever." So with the ax they began to cut away the trees that had protected the soil for so many centuries. Sometimes they rolled huge logs into immense piles and burned them. Frequently the fire would escape and great conflagrations would break out near the settlements, killing and crippling the trees by the countless thousands.

UNLESS REINFORCEMENTS ARE RUSHED IN MIGHTY SOON, IT IS GOING TO BE A LOSING FIGHT FOR THIS LONE LEGIONNAIRE, WHO HAS MADE A GLORIOUS FIGHT ALL ALONE!

Where once stood the forest battalions fields were planted, and the settlers, amazed at the abundant crops on the fertile soil, said again, "It will last forever; the soil is so fertile it will yield us crops forever."

Alas for the misplaced hopes of men! The protecting forest legion was gone. Insidiously, with gathering speed crept in first the scouts, then the vanguard of the relentless army of erosion, carrying away the choicest treasure, looting the soil of its last vestige of fertility. Slowly but surely the quiet melody of the streams was silenced or turned to a harsh and menacing roar. The landscape's beauty was ravished, and finally, to man's communities was brought poverty and desolation. Sometimes concealed and stealthy, sometimes direct and forceful, the attacks of this ruthless enemy wrought inestimable damage even before the destructive campaign was discovered. But always the soulless adversary left unused no opportunity to harass and to ruin.

A few years passed by, and the fields that were once so amazingly fertile no longer produced crops to pay for their cultivation. The top loose soil that once supported the corn and cotton and tobacco was gone, but so artfully had it been stolen away that the tiller of the field had not noticed its loss. After a few more years of planting his crops upon the exposed subsoil, and harvesting but meager yields for his efforts, the owner of the land concluded that the crops had worn out the soil and decided to cultivate the field no longer.

But it was not the nutrients that the crops had taken that had impoverished the soil; it was the scouts of erosion that had carried away the unprotected surface soil.

After being abandoned for cultivation, the gullying shock troops of erosion then began a campaign for the land's complete devastation, finally cutting through the remaining subsoil to the parent rock beneath. Frequently a platoon of young trees would take position on the ravaged land, and sometimes they would recover possession and hold it again under their protection. Sometimes the young trees were not of sufficient number to drive out the enemy, and after fighting in vain, awaiting reinforcements, they became surrounded, were undermined, and destroyed. Everywhere abandoned fields became the battlegrounds for furious conflict between the legionnaires who sought to recover the land on one side and the devastating forces of erosion on the other. Everywhere scattered companies, with insufficient reinforcements, are bravely endeavoring to recover the partly eroded land.

Too late it was realized that the forest legion was the true champion and protector of the land's great wealth, the soil. The havoc had been done. Tens of thousands of acres of once fertile land lay devastated beyond recovery. Hundreds of thousands of acres the legion still holds, but with troops that have been horribly crippled and maimed by fires.

GRASS ALONE IS FAILING TO PROTECT THE SOIL ON THIS ABANDONED FARM AGAINST EROSION. TREE TROOPS MUST SOON BE RUSHED TO THE RESCUE OR THE WHOLE HILLSIDE WILL BE DESTROYED

THE FOREST ARMY PROTECTED THESE MOUNTAINS FIFTY YEARS AGO. FIVE FEET OF LOOSE SOIL HAS WASHED AWAY, LEAVING THE ROCKS BARE. ONLY IN TERMS OF GEOLOGIC TIME CAN IT BE ESTIMATED WHEN ANOTHER FOREST WILL COVER THIS PITIFUL, DESOLATED AREA

Nevertheless, man, who should be the legion's ablest ally, still hesitates to mobilize his own resources for its aid. Still he allows fires to sweep through the forest ranks, wreaking inestimable havoc. Still he lets poison gas stifle the unsuspecting forest troops. Still he slashes with his ax into the forest battalions with careless indifference as to how the ranks will ever become closed again. Still he will not read

the story that is each year written more plainly on the hillsides, written in ruin and hideous devastation, written in ugly wounds cut deep on nature's face.

When the vanguard of erosion is encamped upon the land his insignia of desolation is flaunted everywhere. The fields that stretch away in the sunlight show the despoliation where his camps have been. On the rolling mountain foothills his forces are entrenching themselves ever deeper and deeper; from hillside to hillside his troops signal to one another.

But the legion has not been routed, notwithstanding that it has suffered severe losses, for the crest of the forest legion remains plainly emblazoned on many widespread mountain slopes. Beauty, not avarice, is its device. On every legion banneret raised against the sky it appears—*Beauty not avarice*. Sometimes, in the glory of the early autumn, man, in his nobler moods, reads this ancient device of the legion, and instinctively he gives his passive approval. Rarely, however, has his active coöperation and assistance to the legion cause been enlisted until through his own avarice he hinders himself from still furthering a greedy ambition of exploitation of earth's riches.

In spite of every adversity, in spite of man's futile mistakes and failures, the forest legion carries on! Its banners are bravely unfurled against the sky! Courageous soldiers that will not admit defeat or become discouraged! Protectors of the earth's riches, champions for clear streams and babbling brooks, standard bearers for the cause of beauty! Weaklings? Not they! The courage and fortitude of the legionnaire comes from a source greater than man's understanding. For there are neither bubbles of honors, nor ribbons, nor decorations for those veterans who, favored by fortune, have survived their wounds. Perhaps their reward may come only when harmony and beauty of earth is restored. Perhaps there are rewards of which man cannot take cognizance. It may be that at night when man's insect-like activity and aimless strife is for a moment quiescent, and splendor and glory from afar shine down upon this little world, then it may be the forest legion sometimes stands at splendid attention, while the Furthermost Great Star touches each soldier with his distant light of salutation from across the universes, and the acclamation of the spheres rings out harmoniously, "Servant of God, well done!"

WHEN THE BATTLE IS OVER! EROSION HAS CAPTURED AND PLUNDERED THE OPEN FIELD, BUT FAILED TO PENETRATE THE LINES OF THE STAUNCH LEGIONNAIRES IN THE BACKGROUND AND BEYOND

Conservation Leaders in Congress

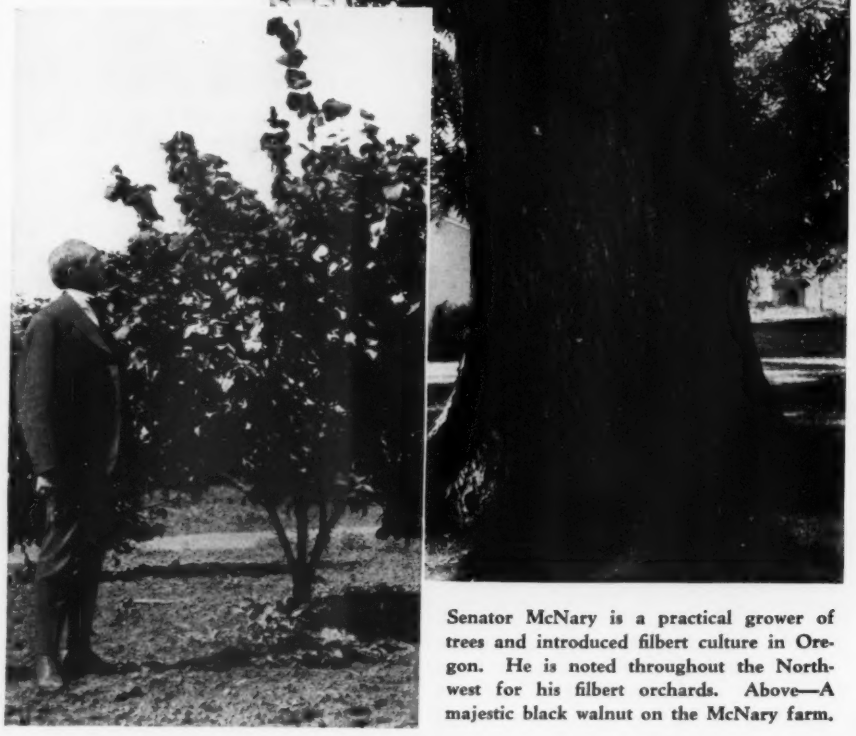
Senator Charles L. McNary, of Oregon, Father of Many Important Conservation Measures, Inherited his Interest in Forestry and Grows Crop Trees on his Farm

By ALMA CHESNUT

IF, strolling through the halls of the Capitol, in Washington, the sound of merry whistling should surprise your ears, you would be safe in laying a wager that just around the corner is Senator "Charlie" McNary, of Oregon, chairman of the Agricultural and Forestry Committee of the Senate and one of the best friends of conservation in Congress.

During a career which began with his appointment in 1917, to fill the unexpired term of the late Harry Lane, Charles L. McNary has fathered some of the most important forestry measures that have been written into the federal law-books. Tactfully but firmly he has battled for every important bill designed to protect and perpetuate forests and wild life.

Testifying to the outstanding role he has played, fully half a dozen conservation laws are known by his name. There is the important Clarke - McNary Act, of June, 1924, establishing a cooperative forest program for the Federal Government and the various states and territories; the McSweeney-McNary Act, of May, 1928, providing for experiment stations in the several forest regions of the whole country where research in growing and using trees, and in properly administering lands may be conducted; the Woodruff-McNary Act and its successor, the McNary-Clarke Act, of June, 1930, providing funds for the purchase of forest lands in the eastern half of the country.



Senator McNary is a practical grower of trees and introduced filbert culture in Oregon. He is noted throughout the Northwest for his filbert orchards. Above—A majestic black walnut on the McNary farm.

Ask the Senator if there is any particular phase of forestry that interests him above others and he will stare at you as if he thought you were talking nonsense, then explode:

"Particular phase! It's all tied up together. I'm interested in the whole dern shooting match." And he is.

"When I came to the Senate," he related, "I sought the chairmanship of the Agricultural and Forestry Committee because of

my immediate interest in the subject. My grandparents on both sides crossed the plains in covered wagons in the early days, traveling westward from Kentucky and Tennessee. One grandfather had charge of the first migration and it took him eleven months to reach the Oregon country. He settled in 1852, near what is now the town of Salem, and established the farm where I live.

"The whole valley, foothills and mountains were covered with majestic Douglas firs. They had to fell them to raise a little tobacco and feed and finally they expanded their acreage by clearing the surrounding territory. In that environment I was born and reared and during the last few years I have returned to it and built a home on some of the wooded acres left. With such a background as that, I am naturally interested in forest conservation."

Although he has behind him a long career as a lawyer, it is Senator McNary's boast that he was born on a farm, has farmed all his life and is still farming. What he grows, by the way, are trees — crop trees such as prunes, cherries, walnuts and filberts. His estate covers three hundred acres, many of them planted in model orchards. Fifty acres are preserved in their natural state, constituting one of the most beautiful private parks in Oregon.

The Senator passes the time o'day with his favorite dogs— "Muggins" and "Mullie."

Famous throughout the Northwest is his orchard of filberts, for the Senator, always interested in nut trees, was among the first to introduce filbert culture in Oregon and he wrote the first American thesis on this subject.

He had noticed that the wild hazel nut is indigenous to the region, indicating the suitability of the soil and climate to the cultivation of its more sophisticated cousin, the highly-bred European filbert that reaches its greatest degree of perfection in the moist river bottom lands and rolling hills of the Mediterranean Basin. He also knew that American consumers spent annually more than a million dollars in foreign markets for filberts, so that the growing of the nuts should be profitable.

Through correspondence with the American consul at Madrid, in 1913, to whom he addressed a thorough-going questionnaire, Senator McNary obtained information about the different species cultivated, the most desirable locations for plantings, methods of culture and propagation and the yield that could be expected an acre. The investigation carried on by the consulate centered about the provinces of Barcelona and Terragona where the industry is large and profitable.

A few under-sized trees, purchased during that year in the domestic market, furnished the first material for experimentation. Later the Senator imported other plants from Europe and made studies to determine which species, of the many varieties grown in other countries, would prove most successful in Oregon. From these early plantings acre after acre of filbert orchard sprung up on the McNary farm. Other planters in the region became interested. "Farmer" McNary's practical thesis on the subject, published serially in the *Oregon Statesman* during the winter of 1916 and later as a booklet under the seal of the Salem Fruit Union, gave birth to a new industry in the Northwest. Filbert culture today flourishes on a large scale and is recognized as one of the growing industries of the region.

Senator McNary is tall, lean and blond, a perennially young man whose springing step and vivacious manner belie his fifty-seven years. His twinkling eyes soften the effect of a manner that tends to become a bit caustic at times. As assistant to James E. Watson, the Republican floor leader, one of his duties is to see that senatorial work gets done, a job that requires a great deal of tact. On numerous occasions he has extricated important measures from an entangling filibuster. In and out among the desks he flits holding whispered conferences with this senator and that. He is credited with bringing relief in the long drawn out drought controversy last spring and with preventing the threatened extra session.

'Tis said that when everyone else was predicting that an extra session could not be avoided he visited the President, buried himself comfortably in a big chair, long legs extended, stretched out his arms in a characteristic gesture and told Hoover not to worry. There wasn't going to be any extra session, he stated calmly, and the President could go fishing. Just how he accomplished the apparently impossible task of winding up business on schedule no one knows exactly, but Senator McNary is famous for his ability to effect compromises in ticklish *(Continuing on page 62)*

© Paul Griswold Howes

Dominica wears an emerald robe—a magnificent covering of ferns and thickets, shrubs and tree jungles—a bewildering array of plant specimens, to delight the explorer and botanist. But this photograph illustrates the difficulties of the way of he who would uncover her beauty, because of the density of the growth with which the mountains and gorges of this island paradise are clothed.

Dominica is in sight and one stands speechless beside the rail as the ship sails leisurely along her gorgeous coast. This is the town of Roseau. The higher mountains are entirely hidden in the clouds and the forests of those regions are therefore still luxurious when the coastal country is parched and brown. The photograph was made in March, at the beginning of the dry season.

DOMINICA— A BOTANICAL PARADISE

By PAUL GRISWOLD HOWES

With Photographs by the Author

A COMMON route into the West Indian Islands from North America, and one generally followed by those trim, smaller ships that regularly feed the Leewards, brings the voyager first to our own Virgin Islands of St. Thomas and St. Croix. From here the steamer sails on southward, touching at St. Kitts and Nevis, occasionally Montserrat, then to Antigua and Guadeloupe and finally we come to Dominica. Beyond, lie St. Lucia, Martinique, Barbadoes and Trinidad.

It has been my good fortune to visit Dominica on three occasions, and in each case my outstanding impression, as the steamer approaches over the matchless Caribbean, has been the same, that here is the supremely beautiful island in all the West Indies. St. Thomas and St. Croix are interesting and perhaps have their beauty spots but they are flat at best. It is a relief after leaving them to gaze at the emerald and chrome checkerboard of St. Kitts' high cane fields. Nevis, with its huge volcanic cone rising into the clouds, offers grandeur and the strange silence that ever hovers over a dead volcano. Better still is rugged Montserrat, and Guadeloupe, green and mountainous, capped with clouds, and spreading out gracefully from mountain cap to sea. And then, before our eyes have had their fill of Guadeloupe's soft, ever-changing colors, Dominica is in sight off our port bow and in another hour or so, we stand speechless before her offerings, as the ship sails leisurely along her gorgeous coast. To make this journey, if only for the experience of observing this progression of beauty from St. Thomas to Dominica, is worth anyone's while.

Dominica owes her winning position in this natural beauty pageant to her vegetation. She is covered in the winter season, when the rains are heaviest and most frequent, with an emerald blanket, from her littoral to her mountain tops, a blanket of shrubs and thickets, of ferns and jungles and mosses and lichens, and an absolutely bewildering array of botanical specimens that transport the explorer or botanist, the forest-lover or the mere seeker after beauty into a Paradise. The author has probably done as much explora-

tion and work of a zoögeographical nature in Dominica as anyone, but he is not a botanist. It is easy for me to explain why the island is a botanical paradise from a physical standpoint, but the question of distribution—how all this wealth of plant life and plant associations became established here—is quite another thing. It seems strange that more botanists have not worked in this paradise so near at hand.

In 1929 Dickinson S. Cummings and the author climbed and surveyed (zoologically) the two highest mountains in the island. They are known as Trois Pitons and Diablotin, 4,600 and 4,550 feet elevation respectively. They are extremely difficult to ascend despite their comparatively low altitudes, because of their tangled cloud-forests that grow fantastically out from the mountains' slippery sides, so that the explorer must ascend a good part of the way through branches covered with slime and dripping moss instead of with his feet upon the ground.

The chief result of our climbs botanically, was to find that vegetation is still in the process of ascent and increase. The higher of the two mountains showed a distinct tree line fifty feet from the summit, while the lower of the two supports the same small trees a few feet from the top, which we found about fifty feet below the summit of Trois Pitons.

Our boy, Benjamin, (who worked for us for all of eight cents a week!) climbs a cabbage palm, or "mountain cabbage" as they are known. The large heart of the main stem is a delicious food, tenderer than celery, often eaten by the members of the expedition.

The position of Dominica is 15′ 30″ North and 61′ 20″ West. In such a geographical situation these mountains are of course high enough to be almost continually in dense masses of rain clouds. The hot tropical sun sucks up vast quantities of water from the surrounding sea and ocean. It condenses above 2,500 feet and the beautiful, thick clouds are turned into torrential rains which sweep down the mountains, drenching the vast untrammelled jungles and filling hundreds of streams and rain-carriers with roaring, clear sweet water. Sometimes rain falls for days at a time. At higher altitudes, three hundred inches—twenty-five feet—of water deluges the forests in a single year! In early times the erosion rate must have been tremendous and doubtless Dominica was at one time much higher than at present, but except in certain places she is now laced and knit together by protecting vegetation so that the rate of disintegration is greatly lessened.

The island seems to be of purely volcanic origin. She still steams and sputters and rumbles in places, and exudes strong smelling sulphur masses into her streams at times. Her lava and her boulders have been strongly acted upon by the agencies of rain. Its acid has dissolved tiny fragments of mineral matter and has eroded microscopic fissures into which this mineral food has fallen. Along have come the wind-borne spores of the lowest plants. Tiny rootlets have filled the fissures and the dead bodies of their kind have decomposed and mixed with more mineral matter to form the early soil. Mosses and lichens have followed in greater profusion. The ferns perhaps came next, and so the soil began to form and spread and support still better things, until at length, the great forest of today with its splendid trees and its ferns thirty feet in height blossomed in maturity.

The seeds of smaller vegetation were easily transported by wind, for a chain of islands form stepping stones all the way to Trinidad, which possesses an essentially mainland vegetation. Birds also, in the opinion of the author, have played an important part in creating this botanical paradise and have probably brought some of the island's most characteristic trees of the upper forest zone.

Four of the strongest flying birds upon the island, two parrots and two pigeons, I found to be feeding habitually upon the hard seeds of the largest, most characteristic jungle trees. As these four birds cannot live successfully at low altitudes on Dominica and as none of these trees grow at low altitudes, the relationship seems plain. The birds planted these trees in the first place with their excrement at an altitude natural to both bird and tree. The first

birds to come undoubtedly died, but years later, when others arrived, they found their food trees in abundance and thenceforth made it their regular home.

The soil of Dominican forests today is tremendously rich. I brought home samples of it taken in the richest parts of the jungles that surrounded our camps, for I wanted to visualize in the laboratory the why of such vegetable abundance. I prepared a series of pots of thoroughly sterilized soil, half from a normal rich garden at home, half from my Dominican supply. The pots were planted with the same kind and number of selected seeds and of course at the same time. In a few days I saw with delight my Dominican pots of soil fairly heaving their seedlings upward, while in the others the seeds had sprouted normally enough, yet their growth seemed spiritless beside these youngsters who were feeding at the breast of Dominica!

In each plant group, there appear to be endless varieties represented. Whether one studies lichens or mosses, ferns or fungi, or the higher plants, there is a wealth of fine material. There are ferns of extreme minuteness and others over thirty feet in height, and fern banks that cannot be adequately described. The Silver Fern is deep green with the under sides of its fronds dusted solidly with its silvery spores, while the Golden Fern is similar but richly ornamented with vegetable gold. The natives place the fronds upon their dusky hands, press them firmly down, and thus make perfect white and yellow prints upon their skins.

This remarkable photograph of Mt. Diablotin was shot through an opening in the clouds from the summit. It is the first photograph ever taken from this mountain top. The Y-shaped mark is the result of a huge land-slide that removed a great strip of forest, leaving a gaping scar on the face of the mountain.

Bromeliads, those typical jungle parasites, are everywhere, supported by trunk or crotch or limb. Their leaves hold water always, and form natural aquariums for semi-aquatic insects, worms and other creatures and are therefore beloved of certain of the birds called *Trembleurs*. The air roots and lianas are bewildering. It seemed to me at times in the forests that there must be some great undiscovered city up there in the meadows of the jungle roof, and these were the electric cables and wires and conduits connecting its vast activities even as we find them underneath New York.

There were delicate pure white orchids growing from logs or the chinks in boulders and occasionally yellow and pink ones in the lichen-covered lime trees of the abandoned plantations. Again there were flowers like little masses of purple wax, Candelabra plants and common homey things like the Morning-Glory or Day-Flower. Not far from camp, grew numbers of Cabbage Palms. A few vigorous slashes of the eighteen inch cutlass brings a medium-sized one down. Near the top, where the leaves unfold, is a bright green, smooth section of the trunk perhaps four feet in length. By slashing it lengthwise, layer upon layer of fiber is easily peeled off. The nearer the center, the tenderer grows the fiber and the paler becomes the colour. The heart is a three foot rod of pure white delicious food, an inch or more in diameter.

On the ascent of Mount Diablotin we discovered a most remarkable pollinating device which was part of a thick vine which rose from the forest floor and disappeared high in the branches of a great Gommier tree. About every two feet, and set below horizontal, thick leaves, were strange and wonderful creations consisting of perhaps fifty green stems protruding from a central one, like the spokes of a wheel. Upon the end of each spoke was a heavy bud, so that when the whole thing came into bloom it formed a complete floral circle, the petals facing the ground. Below the blossoms and set in a circle about the stem also, but closer to it, were a number of scarlet or crimson tubes, or little open-mouthed bottles partly filled with nectar.

This is a glorious thing. It is doubly wonderful because it secures pollination both from avian (doubtless humming-birds) and insect sources. By day the bright colours attract the forest hummers and the nectar pots bring the feeding birds to such a position that the pollen is scattered about, upon them, by the wind from their wings. It is also rubbed off upon the head and neck feathers and thus transported to other blossoms and cross fertilization is assured. The plant attracts insect visitors by night also. The Humming-bird moths are probably the only insects which are fitted with long enough tongues to reach the nectar in these deep cups and in the same manner as the birds they carry the pollen from blossom to blossom. Dominica needs a botanist!

The staple vegetable food of the Dominican native is a Caladium, called Da-shin in the vernacular. Its huge, elephant-ear foliage is to be seen growing from the mud of every mountain brook or swamp, and less luxurious fields of it are cultivated in drier situations. These Da-shin patches are guarded by unwritten, but extremely strict laws, for this vegetable is often the native's bread and butter, espe-

cially in years of banana failure. The root of Da-shin somewhat resembles a very coarse and irregular turnip.

As on most small islands, animal life is much less abundant than on the main lands, but Dominica is better off in this respect than the rest of the Leewards. Here again her rich vegetation is the reason, as it offers habitats of great variety. There are fourteen species of mammals known to the author, nine of which are bats. One of these is a large species which feeds upon minnows, apparently scooping them up in its tail membrane as it flies over the water. Some of the smaller varieties are of considerable economic value as they congregate in mountain caves where large deposits of guano are mined by the natives for sale to the plantations.

'Possums are not rare, and the Agouti, that very common animal in South America, is found occasionally. Both of these species are continually hunted and eaten by the natives. Black rats and common mice are there of course, and the remaining mammal is a wild pig which escaped into the mountains when in a domestic state and is now of a wild and stormy disposition. It is an interesting fact that every mammal in Dominica except those two universal pests, are of some use to the population.

Fifty-seven birds have been recorded from the island. In the mountain forests and thickets, they fill the days with song. Solitaires, beautiful thrushes, finches, cuckoos, Euphonias, parrots, doves and hummingbirds. There are four flycatchers and two warbler residents, and of course, many migrants that are seldom seen. Large numbers of individuals give the impression that there are many more than fifty-seven species. Sometimes for special reasons, such as the blooming of the orange groves, or the flaming Immortelle trees, hundreds of hummingbirds and honeycreepers will congregate, filling the air with buzzing, darting forms and squeaking and sputtering voices.

Unfortunately, the doves and pigeons which the natives call Perdix and Ramier, are continually being shot for food. Even worse is the fact that the two species of parrots, which are found nowhere else in the world, are also hunted and devoured whenever possible by the dwellers in the interior. If these inroads are not stopped and the laws more rigidly enforced in the near future, all four of these beautiful species will become very scarce or extinct.

Dominica is free from poisonous reptiles, but Boa-constrictors are not uncommon, some of them reaching eleven feet in length. On our last expedition we captured a number of these and brought them to the United States alive. Another small black and white snake is also common, as are the grotesque geckos, Iguanas, chameleons and other interesting lizards. A very large and beautifully coloured frog known as Crapaud is diligently hunted. This is *Leptodactylus fallax*, as it is known scientifically, and large numbers of them are eaten annually. They are very fine as prepared by the Dominican cook. The comparatively tiny *Eleutherodactylus* frogs are everywhere, and they are remarkable in that their young are hatched as perfect, minute individuals from eggs which are not deposited in water, there being no tadpole stage.

A wealth of fish life swims in the waters about the island, while the rivers contain mullet, and thousands of shrimps and crawfish all of which are delicious and easily procured. Land crabs form another free food for the natives, and as I have often stated, no one could starve in Dominica.

Insects, molluscs and still lower forms appear to be of little consequence at present. I only secured about four hundred species of insects and very few of these were pest varieties. In all my work upon the island I only encountered three forms of plant lice! Honey bees have been introduced and are now found wild all over the island. Their honey is of a very unusual and delightful flavor and is very much redder than any other that I know of. I saw no trees or crops covered with insect pests except on the Milton Plateau, where cabbage butterflies were doing some damage, but on the other hand, great numbers of hawkmoths were diligently cross fertilizing the orange blossoms at the other end of the island. I know of no place where insects are more innocuous as a group.

Dominica's trees are large and very numerous. The most characteristic species are the white-boled Gommiers or Gum trees. They exude a heavy resin. This is eagerly collected for it will burn in the heaviest rain storm and may be used for kindling fires, or for torches to light the pitch black jungle trails. This gum alone made it possible to kindle fires during those cold, drenching nights in the high forests when everything about us was soggy and dripping. With its aid, in a hard rain storm and wind, we ended our night in comfort more than once, snug in our blankets before a roaring fire.

Chatagniers are characteristic also. They send out thin buttresses to support their great trunks in the soft ground and mould where they grow. They are used for shingles as they split very evenly and easily. There are many fine cabinet woods, but they are little appreciated, and when used are cut in the most primitive hand-power saw mills, with enormous waste of time and energy. The native Red Cedar, which is of course a deciduous species, is used to a great extent for coffins because of its durability.

The vegetation is separated into distinct zones which are of great interest ecologically. Setting the aneroid at sea-level at Roseau, we progressed slowly up the hills to make observations. At 500 feet up the Imperial Road, the first signs of dampness were encountered and the low bushes and thorny thickets gave place to the beginning of the forest. The intense heat and the little blue butterflies disappear. As we ascended little ferns grew commoner all the while and at 1,000 feet the first of the beautiful tree ferns were encountered. The forest grows richer every minute and the fresh, cool, plant-perfumed air becomes delightful. More and more varieties of ferns creep into the picture and a marvelous array of growing things confronts one as the true subtropical forest is reached at 1,400 feet.

From here there is not much change until a much greater altitude is reached upon the mountains where no trails are cut. At 2,500 feet, which is about the average lower limit of clouds, the subtropical forest merges with the gnarled or spindly trees of the true cloud-forest and from this altitude to almost the top of the highest mountain, the trees grow more and more tangled and twisted and stunted. Fifty feet from the summit of Trois Pitons, trees disappear altogether, giving place to bushes, and countless ground-living Bromeliads, mosses, and a few fungi.

Dominica affords a wonderful field for the investigator. The island has been studied so casually in the past that here is indeed an opportunity for a botanist with a true love of the wild. He must be stoic and hardy if he leaves the beaten trail, for without these qualities no one should tackle the mountains or the interior of Dominica.

THROUGH THE LENS

Short Lessons in Photography for the Outdoorsman

SNOW AND SNOW SCENES

Photography by Vivian Milner Akers

IT matters not whether the man or woman who turns a camera on the outdoor landscape is a professional or amateur the objective of the lens is beauty. It may be a picturesque little mountain lake, or a shadow-flecked forest trail, or colorful snow landscapes, the objective is very definitely to record pictorially the beauty the senses reveal.

And as each landscape or scene reacts differently to the senses when reflected through the eyes, so will changing lights and colors register different effects upon a sensitive film when reflected through the lens of a camera. Thus the combination of light, composition and exposure that registers the most striking beauty of a mountain lake must be altered or changed to picture the true beauty of a snow landscape.

Generally, January is the month for the most beautiful effects in the snow landscape and the outdoorsman who follows the snow trail with a camera is very likely to have many real opportunities to test his skill. And it is that these opportunities shall not be wasted, that the amateur might know more about his particular subject, that Vivian Milner Akers, of Norway, Maine, whose photographic work along with his paintings and sketches have found broad recognition, was asked to give the novice a few helpful suggestions in gaining beauty in photographing snow and the snow landscape.

IT IS QUITE NATURAL THAT SNOW AND THE SNOW LANDSCAPE SHOULD BE SO CONSPICUOUS IN THE WORK OF VIVIAN MILNER AKERS, ONE OF AMERICA'S OUTSTANDING ARTISTS AND PHOTOGRAPHERS, FOR HE WAS BORN IN THE LITTLE VILLAGE OF NORWAY, MAINE, WHERE THE WOODLANDS AND THE HORIZON HOLD THEIR WHITE BEAUTY FOR MANY MONTHS EACH YEAR, AND HE STILL FINDS HIS INSPIRATIONS THERE. HIS PAINTINGS AND SKETCHES ARE WELL KNOWN AND HIS PHOTOGRAPHIC WORK HAS BROAD RECOGNITION. THE BEAUTY OF HIS MAINE LANDSCAPES AND WOODLAND SCENES ARE NOT NEW TO THE READERS OF "AMERICAN FORESTS", HOWEVER, AS HE HAS CONTRIBUTED PICTORIALLY TO THIS MAGAZINE FOR A NUMBER OF YEARS.

"As snow is light in color and high in value," Mr. Akers points out, "it must be dealt with in much the same way as one would photograph the sky and clouds. Color sensitive films should be used, for snow shadows are usually blue or violet, and it will be found desirable to use a ray filter to properly record these tones.

"In snow scene composition the same principle applies as in other fields of photography—always ask yourself 'what is this to be a picture of?' and direct the full attention to the one idea.

"Light is an important thing in photographing snow scenes for sunlight always enhances white beauty. The novice should always work toward the sun so that the shadows will radiate into the picture.

"As a rule snow scenes require *(Continuing on page 63)*

In snow scene compositions, light enters most importantly, for sunlight always enhances white beauty. The novice in winter woods photography should always work toward the sun so that the shadows will radiate into the picture.

With the short winter days, beware of underestimating light values. Always have good areas of shadow to contrast with areas of light, as this increases the whiteness of the snow.

WOOD - - - ITS USES

Heavy Timber For Dwellings

An Old Form of Building Construction Reappears Under New Auspices

By FRANK P. CARTWRIGHT

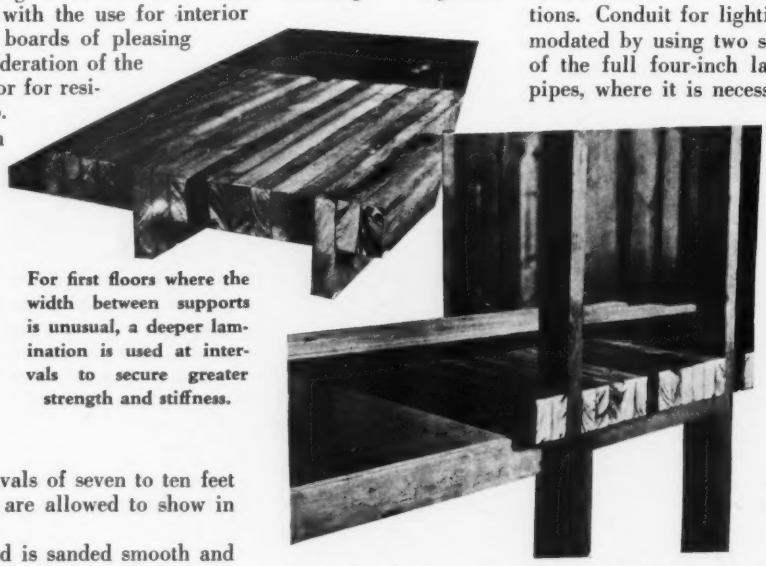
The story of wood and its manifold uses is never old. Every day engineers are devising new uses, new methods. The Editor believes that the public has a keen interest in these developments and has arranged to publish every month throughout 1932 brief stories of the progress in wood utilization. Mr. Cartwright, who opens the series in this issue with *Heavy Timber for Dwellings*, is Chief Engineer for the National Lumber Manufacturers Association. Future articles will be prepared by Mr. Cartwright and other authorities.

AN old form of building construction may reappear under new auspices, according to forward-looking builders, if the present vogue for wood finished interiors continues. A century ago, when portland cement was unthought-of, and steel was something of which to forge a first class cutlass, Yankee weavers along New England streams built their textile mills with thick plank floors supported by large beams and columns, also of wood. A little later the plank floors gave place to laminated slabs in which narrow two- or three-inch planks were placed on edge, face to face, and spiked together to form a solid slab four inches or more in thickness. Such floors had great fire-resistive properties, which led to the expression "slow burning," applied to them in fire insurance circles.

Recently, the growing interest in fire-resistive dwelling construction, coupled with the use for interior finish of plywood or boards of pleasing grain, has led to consideration of the old time laminated floor for residential purposes also.

The new type can be used either for first or second story house floors, in place of the familiar row of thin, deep joists with sub- and finish-floor above and lath and plaster beneath. It is built usually of two-by-fours, laid on edge, spiked together, and supported at intervals of seven to ten feet by cross beams which are allowed to show in the room below.

The slab thus formed is sanded smooth and a finish floor of hardwood is nailed down or laid in mastic. The under side is finished with plywood, and the main beams can be hand-hewn, stained or painted, or finished with clear lumber and mouldings to afford architectural relief.



For first floors where the width between supports is unusual, a deeper lamination is used at intervals to secure greater strength and stiffness.

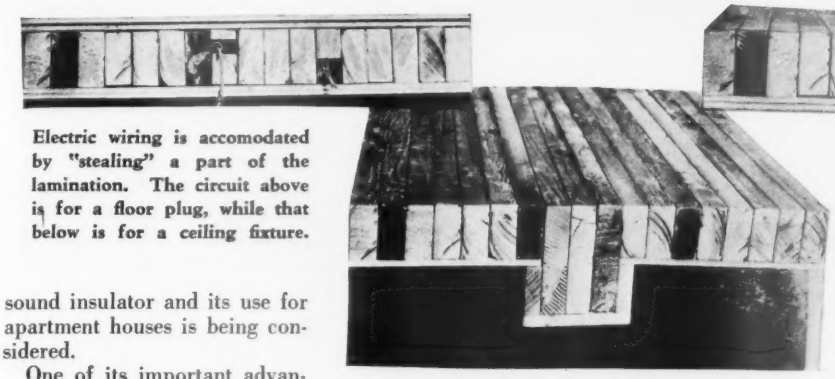
Laminated house floors are supported by ribbon boards, like the joists in an ordinary house floor, or a short piece of timber may be used resting on cleats nailed to the studs. In either case the hollow spaces between studs are automatically and effectively firestopped at each floor line.

The floor thus secured takes up less room than the joisted type, being only five inches deep where the latter is nearly twelve. Over a foot is saved in the necessary height of the building, or if preferred the room height can be increased. The plywood or board under-finish is not subject to cracks or breaks, but maintains its position permanently.

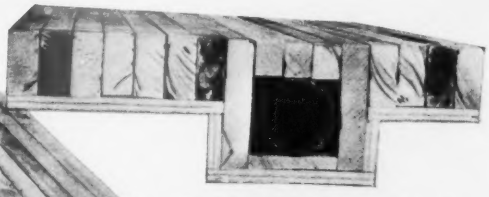
A little more lumber is required as compared to the joisted floor, but not as much as would at first appear. The sub-floor, customary, and in fact necessary in present house construction, is eliminated, and the lumber used for the slab may be of a lower grade and therefore cheaper than is required for joists. The weight is slightly less, because plaster, eliminated in the new construction, is much heavier than the wood which replaces it.

Ingenious methods have been devised for special situations. Conduit for lighting circuits is accommodated by using two shallow strips instead of the full four-inch lamination. Plumbing pipes, where it is necessary for them to run laterally in the floors, are boxed in to give the appearance of a floor beam. Partitions are supported by deepening two or three laminations in the floor directly below them. Unusually long first floor spans are stiffened by making every fourth or fifth lamination deeper than the rest.

No tests have been made, but from the fact that it presents a thick barrier of resilient material, the new residence floor appears to be a good



Electric wiring is accomodated by "stealing" a part of the lamination. The circuit above is for a floor plug, while that below is for a ceiling fixture.



Plumbing waste pipes are boxed in to look like floor beams. Thus inclosed they are more easily accessible than when housed in with plaster.

Under partitions several laminations are deepened to support the additional weight.

sound insulator and its use for apartment houses is being considered.

One of its important advantages, and one which commends it to the attention of discerning builders, is its resistance to fire penetration. Tests made some time ago disclosed that a hot fire, such as occurs very seldom in actual building fires, will penetrate only about half-way through a four-inch laminated slab in an hour. Such resistance confines a fire to the room in which it originates and enables firemen to reach the scene and extinguish the flames before much harm is done. The thick, solid slab of wood at the second story level automatically shuts off the hollow spaces between wall and partitition studs. Flames or hot gases from a fire starting in the first story are prevented from finding their way upward through these open spaces and breaking out in the rooms above.

Either the plank or laminated type of heavy timber floor can be used with brick walls as well as timber frame construction. When brick walls are used the floor beams rest in niches which are built into the walls when the bricks are laid. The ends of the planks or laminations making up the floor slab are supported by laying three or four courses of brick which project a few inches on the inside of the walls.

The plank floor is usually most suitable for first floors, since it does not so readily permit of concealing pipes or electrical conduit. These can be attached to the basement ceiling and left exposed, however, without serious objection from the standpoint of appearance.

The plank type of heavy timber floor has been proposed for economical houses without basements, to be built in localities with cold winter climates. To secure a warm floor under foot the floor planking is first covered with a thick, tough layer of asphalt saturated building paper. Over this are laid nailing strips, crosswise of the floor planks, and from one to three inches deep. Between these strips sawdust or other insulating material is packed and a finish floor is laid above. Such floors almost entirely exclude cold, and they are particularly recommended for farm dwellings.

The undersides of plank and laminated floors for dwellings can be plastered if this is considered essential, but the spans otherwise used between floor beams should be about one-fourth less. The use of plywood or sawn lumber gives more pleasing effects, avoids the possibility of disfiguring cracks, and will be found more economical in the long run for ceiling finish. Laminated floor construction gives the would-be home owner who likes to work in wood a chance to capitalize his skill and experience to his own advantage. The contractor or operative builder can be required to quote a price on the dwelling with floor slab exposed and the upper surface sanded smooth. The occupant can then install finish floor and ceiling as his taste permits.

Supporting beams in the case above are hand-hewn, and the underside of the floor slab finished with random width boards of pleasing grain.

Tests are now being made to determine the best methods of nailing the laminated floors as they are built up from successive pieces. Different lengths and arrangements of nails have been tried, the results indicating that thirty penny nails spaced about twelve inches apart are sufficient to bring about common action of all the pieces in the floor in supporting furniture and other loads.

DOWN THE PATH OF 1932

HATS off to 1931 and sleeves rolled up for 1932! How is that for a New Year's resolution? Many of our best resolutions fade away like a streamlet in dry sand because we do not back up good intentions by intelligent planning. Sleeves rolled up for what? Most boys and girls who have a keen interest in the outdoors are glad to get definite suggestions on what to do, how to have the most fun, and what might be best to know. These suggestions might be arranged in the form of a plan. Such a plan would be a blue print for the year; a compass to chart the course of the journey through the 365 days to definite accomplishments. Let us see what we might roll up our sleeves about.

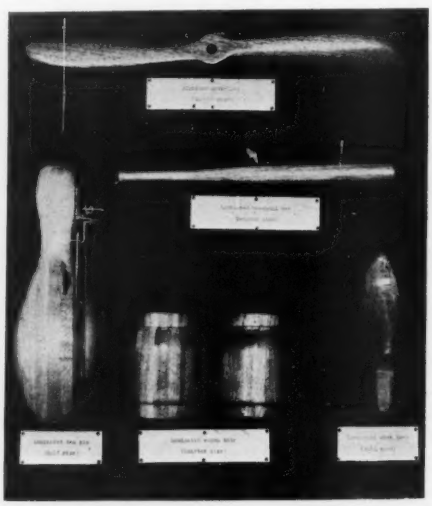
Select some nook in the home for a forest museum and workshop; your sanctum sanctorum. Here you can read, write, think and work out your thoughts. Here you can exhibit collections of unusual stones, bee and wasp creations, wood and leaf specimens, insect mountings, handicraft work and other findings and creations too numerous to mention. Here can be developed a pageantry of the seasons. What a place for a boy!

In February we must get our bird house made and painted. This month is not too early, for the house must get a period of weathering to remove the odor of paint before the south wind brings back blue days and fair and the birds come north again. This month would be a good time to construct a machine to make rope. Some definite instructions in bird house construction and how to make a rope-making machine will be given in the February, 1932, issue of this magazine.

March winds invite us outdoors to look for awakenings in nature. The snow is practically gone and the trees are bare, and it is a good time to learn how to use with facility the graduated walking stick we have made for measuring the height, diameter and contents of trees. Directions for making such a stick will be given in the March issue.

We have found that many boys like to have a nursery bed in the garden. Here a part of the seedlings secured for planting the woodlot or waste places on the farm can be put in transplant beds and nurtured to stronger specimens before transplanting in the open. In April I will give a detailed description on how to make and use a transplant board.

It is not a home until there is a patch in the carpet. It is the "heap o' livin'" that wears out the carpet and makes the joyous home. The patch is the evidence. Nurserymen say that it is not a home until it is planted; that the patch will grow larger when trees and shrubs add their joyous appeal. An article in May will describe how one boy



Laminated wood products made with the use of glue. Proper gluing is an important factor in utilizing wood, improving properties, using wastes from wood, and in cases giving longer life.

beautified his home grounds. Going camping? Summer was made for camping. It is a joyous part of the journey down the fifty-two weeks. An article for the June pages will describe some interesting features of camp life, giving in detail how to make plaster casts of bird and animal tracks, how to tell the different poplars, also some good camp games. June is the height of the mating season for birds and birds are at their best in plumage, activity and song. We are going to take up the making of an herbarium again in July for this should be the part of any plan in forestry work. In August we will describe and tell how to use some of the simple instruments of a forester. Identification of common oaks and maples will be presented in word and drawings. Besides these features you will find the joys of a canoe trip to whet the desire for such a trip or to cause us to re-live those taken.

A Boy's Schedule in Forestry Work for 1932

Plant at least twenty trees of suitable kinds in places where the trees will have a chance to come to maturity and be a source of enjoyment and economical value.

Plant a tree in honor of the Father of our country during his bicentennial in 1932.

Establish a forestry museum at home; a boy's sanctum sanctorum.

Keep a forestry scrap book to preserve the best found during the year in pictures, articles and snatches of prose and poetry.

Attract birds to the home by bird houses and feeding stations.

Make and learn how to use readily a graduated walking stick for measuring heights, diameters and contents of trees.

Start this year to beautify home grounds.

Learn to identify forty birds by song, flight and plumage and their usefulness to man.

Learn to identify forty kinds of trees and make an herbarium of their leaves.

Learn how to tie fifteen knots and splices; how to whip the end of a rope, wind a broken ax handle and make rope with a machine of his own making.

Locate the National Parks and National Forests; give areas and timber resources. Same for the state he lives in.

Help organize a forestry club and help make it a worthwhile club.

Take one good outdoor magazine and after reading pass it on to some interested boy or girl.

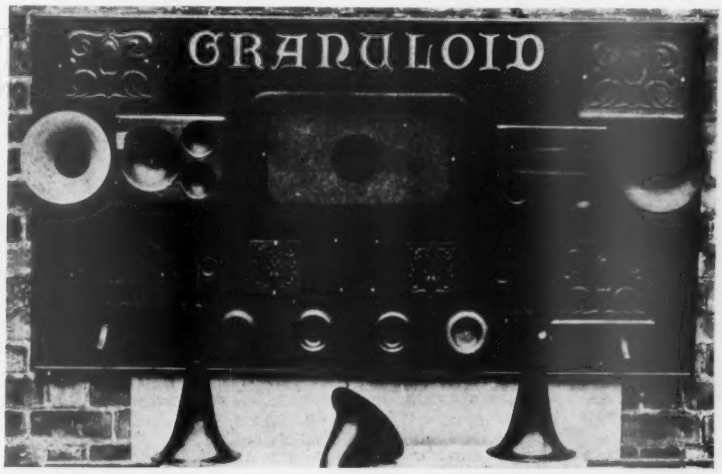
September is close to the time when apples get ripe. Probably it was along about that time of the year that William Tell performed his epic feat. So this would be a good time to think about making a good bow and some arrows and learn how to shoot and care for them. September's pages will be of help to any boy interested in bows and arrows. The remaining issues will be devoted to such seasonable topics as hibernation and migration with some worthwhile things to do thrown in. The December issue will come in due time to tell about little appropriate knicknacks you can make to add joy to the Yuletide season.

Once I played baseball on a college team. Trees have added quite a few rings since that day. Our pitcher was as thin as a crowded sapling pushing upward for crown space. But he illustrated well the truism that what counts in getting the ball across the plate with baffling speed is not the strength of the pitcher but how much of his strength he can get behind the ball. I have always felt that this same philosophy applies to the work being done by the scientists who are finding new uses and better ways to prepare and use forest products; that they are trying constantly to put more and more behind the timber resources that remain. Certainly these men hold a high batting average when we contemplate the constantly growing list of the uses of wood. According to T. J. Mosley, technical reviewer for the Forest Products Laboratory, at Madison, Wisconsin, this increase in utilization is sure to have a stimulating effect on forest production. He presents a utilitarian view that may be new food for thought to many boys and girls. Many people think that to save the forests means to use less wood. He holds this is not logical thinking. We might as well say that the way to save the wheat farmer is to use less wheat. We grow wheat because we need it for use; the greater the use, the more planting is stimulated. The same rule applies to forests, he holds. If forests are to be properly cared for and protected and new forests grown, it will be because the uses for wood will be multiplied and the demand so increased as to make profitable the growing of forest crops.

He continues: "This is the reason why you are hearing so much today about forest utilization. Determined groups of men throughout the country are saying that the forests shall be put to greater use.

"By improved logging, milling, manufacturing, seasoning, handling, construction and maintenance methods they propose to make wood serve the needs of the public effectively, increase demands for forest products and thus insure the future of the forests."

The United States Forest Service, looking well into the future for all our forests, including the hundred million acres of National Forests that it protects and tends, maintains a unique research institution at Madison—the Forest Products Laboratory. There 200 scientists, technicians, and their helpers are constantly working for the improved utilization of wood. Their investigations cover old uses, new uses, increased mill efficiency, fireproofing of wood, better seasoning, better painting, better chemical products from wood, larger and better yields of pulp and paper from various species, stronger timber construction, and many other phases of forest production, so that the public may know the true values of wood and may use this tremendous resource liberally and to the best advantage. One of the most promising methods of up-to-date forest



Little grains of sawdust go into the making of a great variety of molded products. Sawdust is used in the manufacture of linoleum, dynamite, radio dials, telephone parts, phonograph records, and many other things.

utilization is selective logging, by which the mill cuts from the stand only the trees larger than a certain trunk size, leaving the smaller trees to grow, re-seed the land, and furnish the next crop when the loggers have made a complete round of the mill's land, say in twenty years. This keeps the land producing forests.

The increasing production of dimension stock instead of lumber from hardwoods for factory use is saving millions of feet of wood, increasing the earnings of the lumbermen, saving freight charges, and giving manufacturers equally satisfactory or better material to work with. Dimension stock is material cut in a series of small sizes at the mill.

Wood by the trainload goes to the pulp mills every day on its way to becoming paper. Nearly twelve million tons is America's annual consumption of paper, pulp boards, and similar products. In the last few years industrial chemists have discovered the way to make rayon of fine quality from wood pulp, and the use of this beautiful silk-like material in all kinds of fabrics is rapidly increasing. Tremendous growth has occurred in the manufacture of automobile lacquers from wood pulp. These and a great variety of other products are the result of our modern ability to separate out and use the cellulose of wood.

So the uses of wood are being multiplied by these scientists, and forest products made to take a more important place in our lives. It seems very logical that increased utilization should stimulate planting, protection and care of our forests. We hope so.

"It is almost impossible to paint the glory of the northern winter forest.....It was an enchanted wilderness, white, silent, gleaming, and filled with inexhaustible forms of beauty. To what shall I liken those glimpses under the boughs into the depths of the forest, where the snow destroyed all perspective and brought the remotest fairy nooks and coverts, too lovely and fragile to seem cold, into the glittering foreground?---'Wonderful! Glorious!'--- I could only exclaim in breathless admiration."—Bayard Taylor.

STRANGE THINGS IN WILD LIFE

THE ACTIONS OF ANIMALS, BIRDS, REPTILES AND FISH DEFY THE BOUNDS SET UP BY MERE MAN

By GEORGE A. SIMMONS

MOST people have very definite beliefs or opinions as to what the creatures of the wild will do or will not do in their daily life. Many there are—though, perhaps, they have never seen the animal, reptile, or bird in question—who will laugh at the idea of such incidents as a fish attacking a snake or a deer seeking protection in a human being. Such things do not happen, they will argue, except in fiction, and in many cases their belief is substantiated by observers and writers of natural history.

Yet, when one sees strange things in the wilderness—things that contradict so-called established facts—there is the inclination to disregard bounds, to hesitate to say definitely that wild folk do this and do not do that. For while the incidents may appear to be out of the ordinary, the fact remains that they happened, and what has happened once, may very readily happen again.

For instance, not so long ago I was making my way along a small stream in southern Michigan, watching with interest the botanical life. I had seen no wild life, except a lone mallard drake winging his swift way upstream. Coming to a still pool, crystal clear and bordered by coarse marsh sedge, I rested on an old log that bridged the stream, keeping well in near shore and in the shade of the tall grass.

I was indifferently watching the surface of the pool when a robin began to cry excitedly in a low thorn tree. My interest awakened, I caught a dry rustling in the sedge and wondered what manner of wild life was abroad. Remaining silent and motionless as the rustling came swiftly toward me, I expected to see a mink or weasel. But it was neither. Instead, a long and graceful water snake slid from the grass and made its way into the pool.

As it neared mid-pool the water boiled and swirled and the snake was hurled into the air. I glimpsed a silver sheen in the water and watched the drama with wonder. Here indeed was something out of the ordinary. The snake fell back into the water and again I saw that silvery streak shoot upward from the depths and again the reptile writhed as the thrust went home. Twice more that happened before the reptile wriggled from the water on the opposite shore of the pool and disappeared into the shadows of the tall sedge.

By shading my eyes I could see to the very bottom of the pool, and presently I made out the form of a large rainbow trout, head upstream and keeping his position by gentle movements of tail and fins. There was no sign of other fish life and it was only logical to assume that the trout had attacked the snake. And when it is considered that reptiles are enemies of trout and are feared by them, the incident seems to be very much out of the ordinary.

One day in November, with the first fall of snow on the ground, I was hiking across a beautiful valley. Evening was approaching and the shadows were gathering and creeping slowly down the slopes. In this dim light I came across the fresh tracks of a bear and followed, hoping to see their shaggy maker. Perhaps I might trail him to his winter bed.

The tracks led for several miles toward the craggy slopes at the upper end of the valley. I walked carefully and with the aid of the soft snow made but little sound. After a while I came onto an old abandoned homestead clearing with an aged and gnarled apple tree growing near the center. A few apples still hung on the knobby branches, and in the tree was my black bear.

The fruit hung well out on the smaller branches and bruin was evidently afraid to risk his neck in the climb to reach them. He inspected each branch carefully and after a while finally descended and waddled up the slope.

I was about to turn away, thinking the show was over, when bruin suddenly stopped as if pondering over a weighty question. Then, apparently reaching a solution, he turned about and made his way to the tree, climbing again into its branches. And he managed to get the apples immediately by

the simple process of shaking the limbs.

Possibly that might be an ordinary thing in the lives of black bears where apples are plentiful, but as far as I knew that particular tree was the only one of its kind in the country.

Deer were never born to be swimmers. Their legs are too frail and their feet are too slender and pointed. Yet they can and do swim long distances when occasion arises.

I was cruising with a friend in a motor launch off the California coast, fishing a little when the mood struck me, but generally hugging the shade under the deck awning. The sun was frightfully hot and a gentle ground swell billowed and broke in a long series of foam on the distant shore.

From my deck chair I was watching a flock of circling gulls when my companion called my attention to a black speck approaching us from the headland across the river that emptied into the ocean at this juncture. I watched it for a time, thinking that it might be a sea lion, but when it remained above water I knew that I was wrong. A sea lion will generally dive and swim under the surface for a while.

The advancing speck aroused so much curiosity that I made my way to the cabin and secured a pair of binoculars. Returning to my deck chair, I focused on the dark object and was surprised to find that it was a buck white-tailed deer. He swam steadily toward us, and when finally he won his way out to where the ground swells were stronger, he turned a little and headed for the sandy beach. But we saw that he was weakening and fearing the long grind would prove too much for him we headed the launch to his assistance.

He showed absolutely no fear when we approached, and it seemed that he tried mightily to help us as with the aid of lines and the boat davits we hoisted him to the fore deck. He was very weary from his long struggle with the sea, but he stood with his head held high.

Where he came from was a mystery, but I believed that he had escaped from the city park across the bay, and I told my friend of my belief. For a time he pondered over it, but when he again started the launch it was not toward the city but toward the sandy beach where cool green hills beckoned to our antlered friend on the bow.

"He deserves freedom after that swim," my friend explained when we beached and watched the beautiful creature stalk away into the wilderness.

One evening in early June I was sitting in a comfortable chair on the porch of my cabin high in the Sierras, enjoying the cooling breeze that swept up the valley and thinking how utterly peaceful it was in the brooding wilderness. A few fireflies were cutting swift and sudden capers among the willows that grew around my spring pond, an owl hooted from the crest of his tall pine snag where he was blackly silhouetted against the last red glow of the evening sky, and the wind soughed through the branches of the firs. The fog was gathering in billowing blankets in the lower valleys and now and then a whirling wreath would break away and twine phantom-like up the steep slopes of the mountain.

With a suddenness that shocked, the stillness of the mountains was broken by the report of a rifle and the echoes spread away until they were lost in the purple canyons toward the horizon. I knew that the weapon had been fired somewhere on the higher slopes and I wondered who was abroad on a hunting trip at that time of year. Perhaps it was some dweller of the mountains taking a shot at a coyote. I soon forgot the report of the rifle as an hour slipped away and the mantle of darkness fell over the hills. I surrendered my place on the porch for a light and a book inside, and had just settled down when the patter of tiny feet on the trail outside came to me. I listened intently for a moment and then silently resumed my chair on the porch, leaving the door open so the light from the lamp could play on the steps. Then I drew my breath in puzzled wonder. Standing in the light not five feet from the steps was a beautiful white-tailed fawn, spotted, timid and appealing.

For a second it stood there. Then it pattered to me and sprang into my lap and I felt a mighty tide of emotion arise within me. The rifle shot on the high slope was no longer a mystery. Some poacher had fired that shot, and somehow I knew that the fawn in my arms was an orphan. I could not still the tugging on my heart strings as I looked down into the wide eyes that gazed up at me with pathetic pleading. It was a wonderful thing to have a baby of the wilds come to me for protection and it was an experience that has always haunted me with its element of unexplainable beauty.

I raised the fawn until he was large enough to care for himself. Then I released him into the wilderness that was his by right of heritage.

So, who can say what the creatures of the wild will do or will not do? There are no more bounds to their actions than there are to human actions; indeed, there are far less. Mother Nature has given them something, call it instinct, intelligence, or what you will, to meet their problems, and to one who has been close to the wilderness and the wild folk one guess as to what they will do or what they won't, is as good as another.

THE BICENTENNIAL NUMBER WILL FEATURE

Washington, the Man, and Washington, the City, and the place of trees in the life of one and the beauty and glory of the other. Pictorially beautiful, the February issue will contain articles by authorities who have carried their studies deep into the tree history of the Man and the City.

James Hay, Jr., will write of the great love the First President held in trees, and how this love is greenly reflected today at Mount Vernon. A pictorial feature will reveal some famous trees associated with George Washington, while H. O. Bishop will portray his keen interest in the wild life of the woods.

Trees in the Architecture of Washington, the City of Trees, will be presented by Dr. John C. Merriam, while Adelaide Borah will tell of its memorial trees. The story of the National Arboretum will be written by Charles Eliot, 2nd, City Planner, and Dr. Frederick V. Coville will tell of the Trees of Lafayette Park, Washington's showwindow of trees. J. Phelps Dodge will tell of the Woods of Washington.

Other articles will deal with the street trees of the District of Columbia and the part the Government is playing in landscaping parks and public grounds.

FORESTRY NOTEBOOK AWARDS

Four Thousand Exhibits Attract Wide Attention as Children of the Nation's Capital Compete for The American Forestry Association Medals

COMPETING for the second time in as many years for The American Forestry Association medals, school children of the District of Columbia in November exhibited more than four thousand forestry notebooks at the National Museum. The Association medals are competed for in a number of states each year in an effort to open an avenue for thought and action to the end of instilling simple and basic forest truths in the minds of school children.

Eight-year-old Janie Bell Bradford, of the West School, and Jan Rus, of the John Quincy Adams School, were awarded medals for the outstanding fourth grade notebooks. The contest for the children of the fifth and sixth grades was won by Jeanne C. Grinnell, of the Jackson School, and Russell Baughman, of the Janney School. All of these children received bronze medals. The large bronze plaque was awarded the Jackson School for its remarkable showing of individual notebooks. Of the eighty children enrolled in the fifth and sixth grades, seventy-five submitted notebooks, of which fifty were of sufficiently high quality to receive the commendation of the judges.

The judges were Dr. Gilbert Grosvenor, president of the National Geographic Society; Dr. Alexander Wetmore, assistant secretary of the National Museum; and C. Powell Minnigerode, director of the Corcoran Art Gallery.

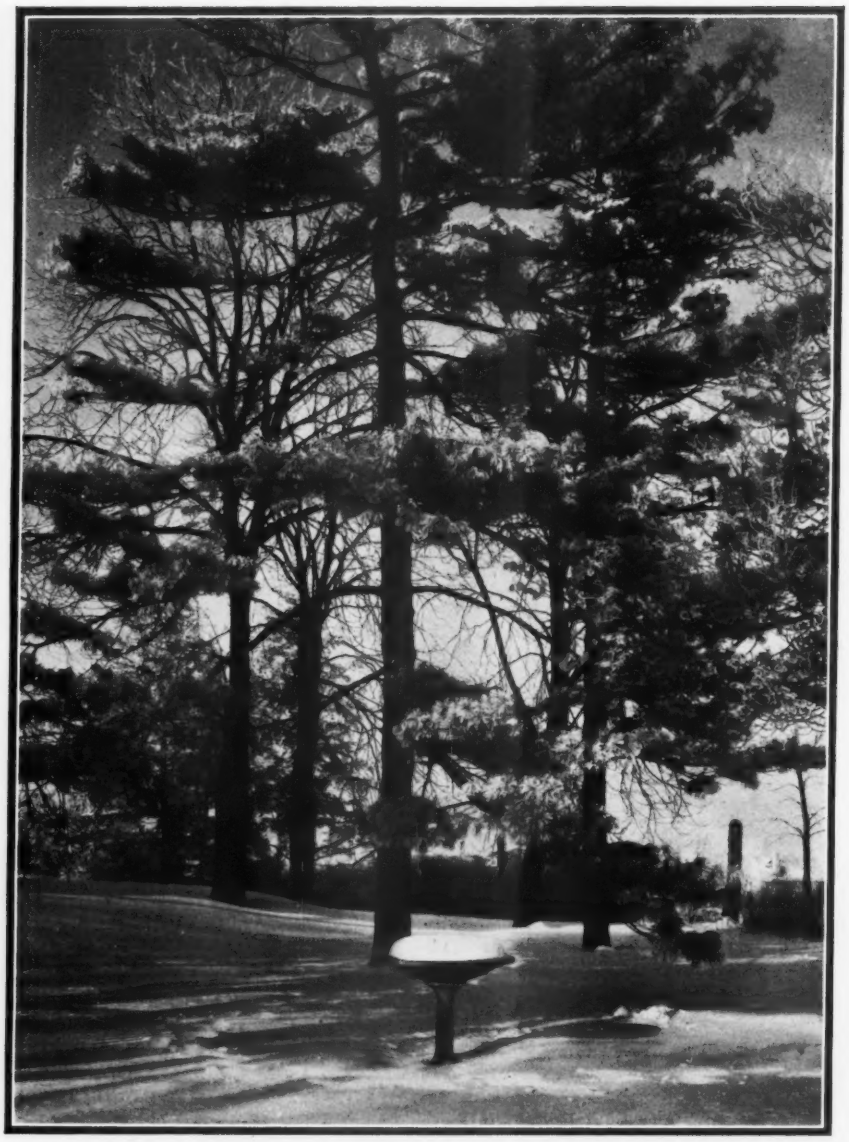
Practically all of the notebooks indicated an interest as well as knowledge in trees and the outdoors. There were specimens of leaves and fruits of trees, descriptions of things the children had seen in the woodlands; there were original poems, original drawings and sketches; there were many pictures and drawings clipped from magazines, chiefly *American Forests*. The contest was announced last spring so that most of the notebooks were prepared during the summer or after summer vacations.

Winners of The American Forestry Association medals with their books. Top row, Jan Rus and Janie Belle Bradford. Bottom row, Russell Baughman and Jeanne C. Grinnell.

The remarkable success of the second forestry notebook contest in Washington is due largely to the leadership of Mrs. Joseph N. Saunders, president of the District of Columbia Congress of Parents and Teachers, and Mrs. Paul Eschner, who served with her as chairman of the Forestry Notebook Committee. These women, with the corps of nature study teachers under Miss Esther Scott, and the art teachers under Miss Ethel Bray, arranged to assemble the books in the main lobby of the National Museum, where they were exhibited for ten days.

The American Forestry Association medals are competed for in many of the states and in Alaska and the District of Columbia. In some of the states essay contests are held while in others the actual planting of trees, pruning, weeding, thinning, tree identification, historical sketches recording early plantings, and the preparation of forest posters have been the means to the awards. As in the past two years, each contest during 1932 will be confined to individual states. These contests may be promoted by state forestry associations, state forest services, state colleges, or any other organization approved by The American Forestry Association.

The judges and the sponsor with some of the forestry notebooks. Standing, left to right, Dr. Gilbert Grosvenor, President of The National Geographic Society; Dr. Alexander Wetmore, Assistant Secretary of the National Museum, and C. Powell Minnigerode, Director of the Corcoran Art Gallery. Seated, Mrs. Joseph N. Saunders, President of the District of Columbia Congress of Parents and Teachers.



Eastern White Pine displays her beauty in the winter garden—the dignity of dark stem and the soft, blue cast of the needles offering delightful harmony against the background of snow.

The Garden in Winter

A Study in Evergreens and Shrubs of Color

By CLARA M. BOLTZ

ALMOST everyone is accustomed to think that after heavy frosts gardens must lie bleak and bare until spring comes around again. This is not true, for nature is very kind and provides a wealth of color for the winter garden.

One has only to consider the evergreens. Every shade and hue of green can be found in spruce, fir and pine, from the deep, almost black-green of Nordmann's fir to the light silvery tones of the concolor fir, or the steel blue of Koster's variety of the Colorado spruce. They lend a touch of warmth and cheer to the winter garden, whether they be conebearing or broad-leaved. Then, of course, to complete the picture there must be a foreground of many shrubs with colored stems and brilliant fruits of crimson, yellow, orange and blue.

With evergreens as a background there is nothing that provides more color than the mountain ash, native and foreign, with its heavy bunches of orange and orange-red fruit. The dogwood, both white and pink, is no less beautiful in late autumn and early winter with its showy red fruit than it is in the spring when its branches are laden with blossoms. The hawthorns and flowering crabs are almost as gay when in fruit as they are when in flower. Then there is the old-time snowberry, and the brilliant barberry.

Any one of the large family of *Viburnums*, which includes the popular high-bush cranberry, will add a touch of color to the winter garden. There are varieties with brilliant red fruit, a Japanese variety with large clusters of jet black fruit, and a native species, perhaps the loveliest of them all, with fruit changing from green to pure pink and then to blue-black. One does not look for flowers in the winter garden but in the witch hazel family nature has provided a group of shrubs which bring a touch of sunshine to the garden even

when the sky is overcast.

Passing through a picturesque valley in eastern Pennsylvania one November afternoon, I came upon a large witch hazel in full bloom. The distant woods were aglow with abundant color, but the mass of golden blossoms which I lingered so long to enjoy belied the statement that witch hazels are not showy shrubs. Certainly this one was, and the gardener who thinks his winter effects are cold and grey need only to grow the native and foreign species of *Hamemelis Virginiana.* For in such a garden the sunshine will never fade. It is the last native plant to bloom in autumn and there are three or four species known to horticulturists which carry their flowering season throughout the winter. The native witch hazel loves to grow along the borders of streams or ponds, although sometimes it climbs a rocky hillside or lights the understory of the woods with its golden blossoms. The fruit, a two-seeded nut, is of great value as food for game birds, especially the grouse.

When planting the winter garden it is important to study characteristic hues and forms of the various species of conifers for much of their background beauty is due to the observance of these subtle distinctions. Is there a lovelier winter picture than the silvery stems of the birch, silhouetted against a clump of darker firs or pines? Coming suddenly upon a group of white birches in a woodland ramble it is not difficult to imagine the scene as folk lore has it in which the birch in disguise asks a shepherdess to dance with her. For three days and nights the birds and beasts of the forest look on with interest at this gay revelry. The shepherdess, not recognizing her partner, dances merrily on dazzled by the radiant whiteness of her strange companion's gown. When at last she takes leave of this enchanted spot the birch fills the pockets of the shepherdess' blouse with leaves which on reaching home she finds have turned to gold. The picture of the old schoolmaster and his birch rod is almost a myth to the modern boy or girl but its use dates far back in history, for legend has it that the tree has never regained its former height for shame that its branches were used to scourge the Saviour.

These old myths and stories of the trees and flowers, however strange and conflicting, add a human touch to the plant world, and fill a garden with living, pulsing spirits.

When choosing evergreens for the winter garden it is important to know that the spruces have dark green, yellow-green, blue-green, or steel blue needles, arranged spirally around the branchlets and lying close to the stem, giving the entire tree a trim, neat appearance. Indeed some authorities say the name was given to the species because of its "spruce" appearance.

The stiff, polished needles enable the spruces and firs to bear the heavy weight of snow and ice, and for this reason they make excellent windbreaks. A sunken garden surrounded by a spruce hedge would be snug and warm compared with one having a lattice enclosure. The most commonly planted of all spruces is the Norway spruce, *Picea excelsa,* a foreigner taking kindly to its adopted country. In addition to being much used in ornamental plantings it is grown for reforesting purposes and many acres are planted exclusively for the Christmas tree trade. The Oriental spruce is an attractive tree but a slow grower. The red spruce is beautiful but demands a moist, cool situation. There are a number of attractive species with blue-green or

Down the garden path on a winter's day, when the loveliness of colorful shrubs is accentuated by freshly fallen soft, white snow—particularly beautiful on the broad, glossy leaves of the evergreen rhododendrons.

steel blue needles or leaves. The popular and generally improperly planted Colorado blue spruce is the best known.

The desire to make gardens colorful should naturally be encouraged but to think that color is a synonym for high pitched tones is a mistake. Robert Henri, the famous artist, speaking of the subject of color in gardens said: "I am interested in the various plants so that the orchestration of the colors will be to the best advantage of the whole and each part." Here is the secret of pleasing color in the garden; like the various instruments in an orchestra the colors must be in accord. There must be balance of the parts for if one color holds the stage alone the effect will be monotonous. The color effect of trees is more subtle than that of flowers. The effect is there although the layman is likely to have difficulty in determining why one garden should be pleasing while another strikes a discordant note. If a blue spruce is to be used it should be Koster's variety—the bluest of the blues. This is the one almost everybody intends to buy, but, not knowing there is a difference in blue spruces, they find after planting that they have bought merely the common blue spruce which turns to a bluish-green after a number of years, taking on a silvery appearance only when the new growth appears in the spring. In its native habitat it no doubt retains more of its bluish cast, but not throughout hot, dry summers. Spruces are mountain children, rugged and hardy, accustomed to fierce blasts of wind, snow and ice. When they descend into the valleys they choose cool, moist locations.

Because it has made its home on the borders of streams, lakes, ocean cliffs and rocky shores the white spruce, *Picea canadensis*, is particularly adapted for use as windbreaks, especially at the seashore. It will endure salt spray and biting winds and where the soil and situation are suitable its arching branches make it desirable either as a specimen or in a group planting. There is another white spruce listed in nursery catalogues as *Picea Engelmanni*—Engelmann's spruce—an evergreen with bluish-green and steel blue needles, soft and pliable, and longer than those of *Picea canadensis*. Engelmann's spruce is also a lover of high mountain slopes and confined to the far western portion of the United States.

Closely associated with the spruces are the firs. While they are also children of the northern forests or high mountains they do not wander so near the Arctic Circle. Their general appearance is not so rugged and their foliage is more pliable, extending only from one side of the stems. This difference in structure, which one might pass as insignificant, is largely responsible for the softer, less rigid appearance of the firs. Nature has destined the trees with needlelike leaves to withstand the storms of high altitudes—battles which the broad-leaved evergreens such as rhododendrons, laurel, and leucothos could not overcome.

One of the loveliest and also one of the hardiest of the firs is *Abies concolor*, the white or silver fir. It is the bluest of this species, with a lighter texture and less rigid appearance than the Colorado Blue Spruce. This is the only fir which grows in the arid regions of America, ranging into southern New Mexico and Arizona. It is the most vigorous of all the firs for the eastern United States.

The balsam fir is a tree of short life and not used to a great extent in ornamental plantings. However, it will always be loved for its association with the Christmas festivities and for the pungent odor of the oil extracted from it. Next come the pines. Their botanical differences are interesting to the student but confusing to the average gardener. Of the seventy species found throughout the world approximately half are native to North America, and of this half thirteen are to be found in the eastern United States. The native species subdivide again into groups of hard and soft pines. The familiar and always lovely white pine, *Pinus strobus*, is the only representative of the soft pine group in the East, the others being found generally along the Rocky Mountain slopes and westward. The white pine group which includes a number of the western species is distinguished by the needle-like leaves being arranged in clusters of five. The eastern white pine has many good ornamental qualities. It is excellently adapted for planting in the winter garden, the soft bluish cast of the pliable needles giving a light yet warm effect when the garden lies beneath a blanket of snow. Could any hedge or screen be lovelier than one of white pine sheared and kept within bounds? It delights in fertile well-drained soil.

In youth the pines are beautiful, in old age they are picturesque, and a landscape without pines would lose much of its charm. It is in middle life that pines are least attractive when they seem to lose the vigor of youth and have not yet attained that charm so characteristic of dignified old age. Unlike the spruces which keep their pyramidal form until they are struck down by the woodsman's ax, the tops of pines break up into a number of smaller branches producing a rounded crown which is especially noticeable in the famous stone pines of the Italian landscape.

However, the variety of form and texture in the different genera of evergreens gives them an added interest. If the pines as well as the spruces and firs were symmetrically pyramidal the sky line would be monotonous. The white pine is an exception and is the only one of the eastern pines which sometimes keeps its pyramidal form throughout its life. Pines are light loving trees while the spruces are more tolerant of shade than many other conifers. For this reason a northern exposure should be planted with spruces, reserving the southern slopes for pines.

Nature has fitted her creatures *(Continuing on page 63)*

WINTER TREES

By JOHN C. FROHLICHER

Fir trees--and spruce--were made for winter time.
When quiet snowflakes start down from the clouds
They do not cling to bare and whimpering branch
Of oak or elm or ash. Instead
They vie among themselves to decorate
In fleecy mats the warm brave evergreens.
Then too you've heard of Christmas trees?
Fir trees, and spruce, were made for winter time.

EDITORIALS

New York's Constructive Planting Program

NEW YORK is a State which for many years has been an outstanding leader in forest planting. By its action on November 3, in approving the so-called Reforestation Amendment, its people have once more affirmed their vital interest in the renewal of the forests of their State. By an affirmative vote, in the proportion of practically three to two, they have put into effect a program that will lead to the reforestation, during the next fifteen years, at a total outlay of $20,000,000, of one million acres of land, now idle and unproductive, that can render an economic return only by being made again to grow forests. This action is all the more significant because having the opportunity, the people themselves have recorded their will, in no uncertain terms, on a question of far reaching internal policy. The fact cannot be questioned that the people of New York State believe in reforestation.

The approval of the Reforestation Amendment gives full effect, on a State-wide basis, to the Hewitt Reforestation Act of 1929. Two things were accomplished by it. First, that the State may now establish "Production Forests" in the belt of land in the Forest Preserve counties outside the "blue lines" that define the Adirondack and Catskill Parks. The State owned lands constituting the New York State Forest Preserve lie within these parks. Second, it serves as a mandate from the people to successive legislatures to appropriate, in yearly increasing amounts, the money needed to carry through the reforestation program, until the full $20,000,000 that is needed has been made available.

This second point is in itself significant, because it shows how a way may be provided to secure the assured financial support, increasing yearly by steps as the work develops, that is essential in an enterprise that necessarily must continue over a long period of years.

While it is true that New York State's reforestation program originated from recommendations made by State Senator Charles J. Hewitt, the idea has had the almost unanimous support of the people of the State ever since it was first proposed. The opposition to it that was raised in a certain quarter shortly before election day seems to have been inspired primarily by political considerations The program itself has from the start been treated as a non-political, bipartisan measure. Consequently it may truly be said that it was approved by the people at the polls on its merits for what it is—a far-sighted measure designed to benefit the people of the State of New York far into the future.

The program on which the State has embarked—for outside the preserve counties it has actually been going on since the autumn of 1929—ranks as one of the great reforestation projects of the world. It is comparable in the area to be planted with what the British are doing in England and Scotland in their afforestation program, started in 1919, and with the reforestation of the provinces in the southwest of France, in the second half of the 19th century—the maritime pine forests of The Landes. Its progress will be watched with intense interest by the other states of the Union and by the Federal Government. It should prove an incentive to increased forest planting throughout this country.

The people of New York State are to be congratulated on having in so convincing a manner expressed their approval of this definite, clean cut and constructive program.

Agriculture and The Public Domain

DECLARING that the economic and social difficulties of agriculture today are to a considerable degree traceable to the American policy of encouraging the rapid transfer of public lands to private ownership, the Land Utilization Conference held in Chicago, November 19-21 upon the call of Secretary of Agriculture, Arthur M. Hyde, and the Association of Land Grant Colleges and Universities, went on record for the retention in federal ownership of the grazing ranges of the Public Domain. These lands, the Conference declared, should be administered by the Federal Government "in a manner similar to and in coordination with the National Forests" in order to assure their conservation and rehabilitation.

This is the first of eighteen recommendations made by the Conference. The second recommendation is that the watershed lands of the west, because of their interstate character should likewise be administered by the Federal Government. It is of special significance that these recommendations take issue with President Hoover's Public Domain Committee which would have the public lands turned over to the states with the ultimate objective of passing them to private ownership. In view of the divergence of the recommendations it is appropriate to consider the groups making them. The recommendations of the Land Utilization Conference represent the majority judgment of over three hundred men eminent in almost every field of economics, agriculture, and conservation. They have studied for years the problems of land use and ownership in its bearing upon national welfare no less than regional welfare and with particular reference to American agriculture. Their views may be accepted as the best and most mature thought in the nation in respect to land matters.

The Public Domain Committee on the other hand was made up of some twenty persons selected by the President from among attorneys, engineers, lumbermen, publishers, editors, authors, state land commissions, former senators, governors, etc. This group, meeting perhaps a half dozen times, formulated recommendations for the disposal of 180,000,000 acres of land by the simple route of giving it to the states to be sold at public auction. A reading of the committee's report forces the conclusion that it did not fully grasp the national economics of the problem with which it had to deal. The declaration of the Land Utilization Conference in Chicago and a comparison of the character of the two groups strengthens that conclusion.

That the view taken by the Chicago Conference expresses the position of American agriculture is borne out by the fact that the National Grange—probably the largest organized group of agriculturists in the country—at its 65th Annual Meeting last month adopted a land policy in which it declared: "The remnants of the Public Domain should not be turned over to the states, but a comprehensive national land policy should include provisions for better consolidation of federal and state holdings, and for the administration of the public land, through reforesting or otherwise, so as to insure conservation and avoid improper use of this natural resource." The Grange further asserted that the surface uses of land under federal control should be entrusted for administration "entirely to the United States Department of Agriculture and so far as practicable to a single bureau charged with their conservation."

AMERICAN FORESTS has previously expressed the view that the proposals of the Public Domain Committee are not based wholly upon sound principles of land use and national conservation. This view is based upon the belief that turning the watershed lands over to the western states for administration and public sale will not affect their rehabilitation and conservation and upon the further ground that the committee's plan contains elements believed to be highly dangerous to the integrity of the national forests. The fact that hastening this vast domain into private ownership through state channels of salesmanship will indirectly add to the burdens of American agriculture is one more reason why the proposal should be subjected to radical revision by experts in national land planning and utilization.

It seems inconceivable that the American public will approve disposal of its Public Domain after a hasty study by a committee composed largely of non-experts in land problems, eminent though they may be in their respective fields, especially when leaders in agriculture, conservation and land economics disapprove. Nevertheless, that issue is squarely before Congress. A bill has been introduced which if passed will harden into law the recommendations of the Public Domain Committee. The provisions of this law are digested elsewhere in this issue and merit an expression of public opinion to members of Congress. The grant proposed would be one of the largest in the history of our public lands and its passage might well prove in the years to come the greatest blunder in the history of public lands stewardship.

The Contests for The Association's Medals

FOUR thousand children busy collecting leaves, twigs, and tree seeds, cutting pictures out of magazines, making drawings, copying poems, asking questions, assembling, organizing and pasting the multitude of reminders of the forest into home made notebooks! That is the background of the second annual forestry notebook contest held in the public schools of the city of Washington and brought to a close last month with an exhibition of the notebooks in the National Museum. For weeks, in some cases for months, in a few cases dating back more than a year to the first forestry notebook contest, Washington boys and girls from eight to fifteen years of age, stimulated by the desire to win The American Forestry Association medal, have had their minds and activities turned to the trees.

For three years other contests have been going on in the states, and in Alaska. School children have submitted essays on the devastating results of fire and on the advantages of forests. Girls and boys from midwest farms have been encouraged to inquire into the history of the planted groves and windbreaks that furnish protection to many a farm home and at the same time they have planted thousands of small trees to start new groves and windbreaks. New England boys have planted trees and tended woodlots while boy scouts posted northern roadsides, and designed new forest fire posters. Florida supplemented the medal with two trips to Washington, an Iowa boy and girl had a trip to Chicago, while in California and North Carolina there was a liberal cash prize. But desirable as are these extra incentives, they are not necessary. In all, not less than twenty thousand boys and girls have thought and worked along some line pertaining to forestry, nearly a hundred have been rewarded with The American Forestry Association bronze medal, and as many more have received AMERICAN FORESTS for a year. One can only guess at the number of relatives and friends whose thoughts have been directed to forests by the questions and active interest of these young searchers after truth.

Each contest has been sponsored by a powerful state or local organization. In the recently completed forestry notebook contest in Washington, it was the District of Columbia Congress of Parents and Teachers. Elsewhere the backing has come from the State Federation of Women's Clubs, the State Forester's Office, the Agricultural Extension Service, the Board of Education and the Boy Scouts of America. Frequently the sponsors have benefited as much as the contestants, and always they have taken on much of the enthusiasm that characterized the more youthful workers.

One may do well to ponder over the influences which are stimulated by these efforts. How far they will reach and how long they will continue one can only guess. But with each year that the contests are conducted and extended into new territory the effects will be increasingly more tangible.

Thus far organizations in scarcely half of the states have taken advantage of the Association's offer to furnish medals, but the results achieved more than justify the efforts. Other states will undoubtedly arrange to use the medals, and the experiences of the past three years can help materially to make the future contests more successful. An example of this is found in Massachusetts where the State Federation of Women's Clubs has decided to carry out the idea of forestry notebooks which has proved so successful in Washington. The effort of the women of Massachusetts will spread over a wider territory and may involve many more children than were affected by the District of Columbia contest. To that extent it will be of broader service. More power to them!

Winter Climate in the Mountains

And Some Interesting Things An Enthusiast Found About Health

By W. GORRELL, JR.

The Big Horns of Wyoming in January when the snow is much brighter than the sky. This photograph was taken from Clear Creek Canyon at about 9700 feet elevation looking off toward Solitude Pass.

IN GENERAL the mountains of fairly high altitude in this country have a few visitors in the summer, and none in the winter. As builders of health and strength they have no equals, yet they are practically ignored for two-thirds of the year. If conditions in the Big Horn Mountains in Wyoming are any criterion, the sole occupants during the winter consist of a few trappers, week-end visitors, forest rangers, and an occasional timber worker. The trappers are mighty few, while the visitors for Christmas or New Year's parties hardly ever leave the roads. The timber crews stay pretty well in one place, and rangers seldom move around above eight thousand feet, and then, it seems, only when they have to. The result is that thousands of square miles of green pines and glistening peaks, the most salubrious surroundings in the world, see no human being from October until May.

Doubtless the main reason for this desertion is the habit of taking vacations in the summer. But the bogies in regard to blizzard and cold have a deal to do with it. The general idea is that climate in the mountains in winter is frightful, with terrible blizzards, and temperatures that render the ordinary thermometer useless. To my reckoning nothing could be farther from the truth.

In the Big Horns, lying in latitude forty-four degrees north, I found that at eight or ten thousand feet the air is twenty per cent rarer than at sea-level, very dry, and exceedingly pure. The strength of the radiation received from the sun is very nearly double that at sea-level; the snowfall averages little more than that at, say, Chicago, and the temperature seldom reaches thirty below.

That needs elaboration: the thinness and dryness of the air makes thirty below feel like ten above in Chicago, and since one is used to living more or less outdoors, and inevitably is more vigorous, he minds it much less than he minds zero in lower climates with greater moisture, where he lives with steam heat.

The lowest eight thousand feet of atmosphere cuts off about half of the total radiation received from the sun; in a large city about forty per cent of the remainder is cut off by smoke and dirt. The ultra-violet region of the spectrum is cut off more than the other wave-lengths of light, so the ultra-violet radiation received at eight thousand feet is considerably over twice that received at sea-level, and say, conservatively, four times that received in a fairly large city. In addition, a considerable portion of the ultra-violet is reflected from the snow.

In regard to health, a climate is rated nowadays by the presence of ultra-violet light, other things being equal. There is an easy way of realizing the increased sunlight: at

noon, in January, at eight or ten thousand feet, the strength of the sun's radiation is only fifteen per cent less than at noon in July—with clean air—at sea-level, in a latitude of about forty-five degrees. With the proper correction for the normal atmosphere in a city I do not doubt but that it is more "summery" in midwinter at eight thousand feet than it is in midsummer in a city at sea-level, neglecting air-temperature and the shortness of the days.

It is common for afternoon temperatures to run up to forty or fifty above zero, though the nights may show the mercury ten or fifteen below. One may toast himself in the sun in perfect comfort, in a sheltered spot away from the wind, even though a pail of water may freeze in the shade. The effect of a constant temperature of about seventy degrees in weakening the strong while it strengthens, within narrow limits, the weak, has its converse: a wide range in temperature strengthens and invigorates those able to react properly. The wide range of temperature is typical of mountain climate. During 1928 and 1929, the heaviest winter the Big Horns have had in thirty years, there were not more than a dozen nights when the temperature reached twenty-five below zero, at eight or ten thousand feet.

As a sample of the way one feels the cold I might mention a fellow who slept in a log cabin, with window open every night, who never bothered to start a fire in the morning, though the thermometer once or twice indicated thirty-five below zero. He admitted that he acquired great speed changing from pajamas to underwear, while standing on his rug, but while the rug was a piece of cardboard, he felt no particular discomfort all winter.

I found no discomfort in working in the shade of the pines wearing only pants and shoes, while new ice was forming in quiet pools in the creek. I had a fur jacket that I wore three times all winter. The first time because I thought I might be out all night; the second time I took it off and fastened it to the pack; the last occasion was at a dance at the ranger station, and fancy "duds" were in order. The temperature was twenty-seven degrees below zero when I left and it felt the way ten or fifteen above does at Chicago. From then on I used two flannel shirts, and discarded the second one as often as not. Only twice all winter did I find occasion to button a leather jacket. The plain, unadorned fact is that it doesn't seem half as cold at eight or ten thousand feet as it does elsewhere, and it isn't one tenth as cold as sensational tales would have one believe.

Even the "tie-hacks" at a timber camp about ten miles away were fooled. When the thermometers read twenty below, they claimed it was too cold to work, and they would go outside long enough to gather fire-wood, and no longer. So the boss, during a brilliant moment, took down all the thermometers, and presently, after the tie-hacks had gone back to work, they refused to believe that it had reached thirty-five below.

The cleanliness of an air that enables one to see a peak fifty miles away as though it were at arm's length, has more than the aesthetic side. It is almost as closely sterile as desert air, and one inhales few impurities. Dust is unknown, and as a consequence, snow remains white and clean.

Precipitation reaches its maximum at about six thousand feet during the winter, and at higher elevations the total amount of snow is no greater than at sea-level. Where it lies in the timber, shaded from the sun, it seldom melts, and additional snows make the accumulation very deep. This only serves to make the surface smoother so that traveling is easier. The wind often sweeps the ground bare of snow in the open parks until late in the winter.

The sunny days far outnumber the overcast, and storms are no worse than elsewhere. The snow is clean and dry and pleasant, and the most important single item in the life is the change one cannot help undergoing when breathing the rarer air.

Inhaling twenty per cent less oxygen than normal with each breath, the rates of respiration and heart-beat increase to counteract the lack, and the strain is normally noticed—and quite often grossly exaggerated by imaginative individuals. The important change takes place slowly. The number of red corpuscles and the haemoglobin content of each, increase until the load is removed from the heart and respiratory apparatus. The increase persists a long time after a return to low altitudes. Were there no other benefits given by the mountain climate, this increased vigor and resistance to disease would be worth the time spent in it.

At first the necessity of transportation under one's own power may not seem inviting. The casual visitor might very well get along without moving about very much. He could spend his time indoors, as though he were home, with a well-stocked library, a radio, and a genial companion or two. But the consequence of even sedentary living in the mountains is an increase in vigor. Daily work with an ax at the woodpile becomes insufficient to satisfy the demand for exercise. A few hundred snowy slopes, steep and gentle, timbered and open, are bound to bring out the skis and toboggans sooner or later. A few thousand square miles of wilderness waiting to be explored will ultimately demand a week's tour. This means snow shoes, for without them one is helpless, and skis are too long for convenience in the timber.

When one hears that all transportation is at a standstill in the lower country on account of a heavy snow, there is a certain added appreciation of the use of "webs," which enable one to go anywhere, anytime, even though a modest four miles an hour seems rather slow. Let the snow be new and deep, or soft and sticky as in the spring, or let the trail be steep and the pack heavy, and one will find that four miles an hour is a mighty good pace. Once it required three hours to do two miles, downhill, and it made shoveling gravel seem like a continual round of pleasure. But such cases are rare. With the wind and sun forming a good crust almost overnight, traveling on snow shoes is usually as easy as ordinary walking, often easier. Nothing can keep the acclimated individual indoors. His vigor is such that he demands a strenuous life. In the end he will want the worst blizzard in history, a heavy pack, and a soft deceptive snow crust. He will then start out to make a circuit of the mountains at timberline, dragging a cabin behind him, not for shelter, but to keep him from going too fast. Such is the effect of the mountain climate.

Add to the purely physical effects the intangible mental reaction to clean, clear, sunny days, gleaming peaks, miles of green timber and open white parks. In a few unusual cases there is the joy of being completely at home in the wilderness. The mental change is as complete as the physical, and the one seems as important as the other. In short, the mountains in winter offer unequalled opportunities for health and strength, as well as the fun of vivid, strenuous living. When these things come to be more appreciated, the mountains will not continue to be deserted when the first snow flies.

FORESTRY AND CONGRESS

IMPORTANT ACTIVITIES SLASHED BY THE BUREAU OF THE BUDGET

FEDERAL activities in forestry are marked for a cut of over $8,000,000 by the budget which President Hoover laid before the newly organized 72d Congress on December 9. These are the preliminary plans for the fiscal year beginning July 1, 1932, and are compared with expenditures for the current year. Of this fiscal curtailment, approximately four and a half million dollars falls upon the building of forest roads, trails and improvements in the national forests. The remainder is divided among other forest activities.

Although not the largest decrease to be recommended, one which ranks high in public interest would reduce appropriations for purchasing land for national forests in the eastern states from $2,000,000 to $245,940. If this cut is approved by Congress, it will practically halt the Federal Forest Land Purchase Program at a time when land values are lower than they have been in years.

Significant also, of the pressure for economy, is the proposed cut of $149,340 in funds authorized by the Clarke-McNary Act as available for cooperation with the states in protecting forest lands from fire. This would leave only $1,545,460 to distribute among states which are now spending in company with cooperating private timber land owners $5,034,520 for forest fire protection. It would place the Federal Government far below its share of the so-called twenty-five-twenty-five-fifty plan by which the Clarke-McNary funds have been administered.

Roads, trails, forest highways and improvements have suffered heavily at the hands of the Budget Bureau. These items, the expenditure of which means employment for thousands of people over the entire country, would be reduced by over $4,400,000.

In the same category as a source of employment is tree planting on the national forests which the Budget recommends be reduced from $250,000 to $160,000, although the Knutson-Vandenberg Act, passed last year, authorizes an increase during the coming year to $300,000. Likewise federal encouragement of forest planting by the states would be reduced by $15,040, leaving less than $70,000 for the states to use in growing and distributing forest planting stock to owners of farm lands. The $93,000 available last year played a material part in making available over seventy million trees for planting. The national survey of forest resources now well started in the Pacific Northwest and recently started in the Southern pine region may have to slow down and adjust itself to a budget of $172,000 instead of $200,000. Investigations in forest products, chiefly as carried on at the Forest Products Laboratory in Madison, Wisconsin, faces a reduction of $25,000, and the work of the Forest and Range Experiment Stations a reduction of $30,000.

Other relatively small cuts which go to swell the total recommended curtailment to over $8,000,000 affect practically every activity of the Forest Service except the control of white pine blister rust on the national forests and provision for sanitation and fire protection on the public camp grounds of the forests. Control of the white pine blister rust is recommended for an increase of $43,140 to make a total of $193,140. This increase is made available to meet a situation in the white pine stands of Idaho, Montana and neighboring states which Government scientists declare threatens the existence of millions of feet of white pine, and industries which employ over ten thousand men in Idaho alone. The other increase of $17,335 would help provide almost $85,000 with which to establish sanitary conveniences and protect public camp grounds for more than 30,000,000 campers and tourists who annually visit the national forests.

In keeping with the policy of the Bureau of the Budget to hold back on the purchase of more lands by the Federal Government, the extension of bird and game refuges by the Biological Survey may be severely curtailed. This will affect particularly the Cheyenne Bottoms Bird Refuge in Kansas and the Upper Mississippi Bird Refuge, and will retard the expansion of all other federally owned areas planned under the Migratory Bird Refuge Act. In the same way the land purchase program of the National Park Service has been

HIGH SPOTS IN THE RECOMMENDATIONS OF THE BUREAU OF THE BUDGET

National Forests	Appropriation 1932	Recommended Increase 1933	Recommended Decrease 1933
General Administration	$ 370,640		$ 16,460
Fire Prevention	2,134,910		
Construction of Improvements	742,575		100,886
Control of forest diseases and insects	352,000	$43,140	
Planting on National Forests	250,000		90,000
Sanitary and fire prevention on public camp grounds	67,000	17,335	
Protection Roads and Trails	1,229,000		1,229,000
Southern California Improvements	150,000		50,000
Acquisition of Additional Forest Lands	2,000,000		1,754,000
Clarke-McNary Act			
Forest fire cooperation	1,694,800		149,340
Tax Study under Clarke-McNary Act	80,200		14,080
Cooperative Distribution of forest planting stock	95,000		15,040
Farm Forest Extension	74,000		4,150
McNary-McSwecney Act			
Forest Experiment Stations	562,000		26,920
Range Investigations	130,000		5,870
Forest Products Investigations	641,300		25,460
Forest Survey	200,000		27,920
Forest Economics	75,000		3,960
Forest Fire Weather	41,840		1,500
Soil Erosion	100,000		10,840
Biological Survey	1,794,710		434,460
National Park Service	9,277,020		241,230
Indian Service — Forests	498,000		123,000

curtailed as has also its road building program. But appropriations for protecting the forests in the parks, for landscape work and for extending the educational activities in the several parks are treated more generously.

The General Land Office appropriation of $60,000 for protecting forest areas on the Public Domain is carried in the new budget without change, although it is generally conceded that a deficiency appropriation will have to be requested to care for the heavy expenses of fighting fire in the northwest during the past year.

The Branch of Forests of the Indian Service may be reduced from a current appropriation of $498,000 to $375,000. In addition they have been allowed only $92,000 in the first deficiency recommendations. Of this sum $65,000 is necessary to pay bills incurred during the recent fire season,—leaving only $27,000 to maintain a fire fighting organization covering about 45,000,000 acres located in seven states.

As this goes to press none of the Departmental Appropriation bills have been introduced in Congress.

Under the Democratic reorganization of the House, Representative Joseph N. Byrns of Tennessee has been appointed chairman of the House Committee on Appropriations and Representative James P. Buchanan of Texas heads the Sub-Committee on Agricultural Appropriations. Other members of the committee are: John N. Sandlin of Louisiana, Michael J. Hart of Michigan, Robert G. Simmons of Nebraska and John W. Summers of Washington. Departmental hearings before the sub-committee began on December 15.

Discussion of the report of the President's Public Domain Commission began on December 9 when its chairman, James R. Garfield, and Francis C. Wilson of New Mexico appeared before an unofficial meeting of the House Committee on Public Lands called by Representative Don B. Colton of Utah, who acted as chairman pending the appointment of Representative John M. Evans of Montana, who is now chairman under the Democratic organization of the House. On December 15 Representative Evans introduced the bills as H. R. 5840 and 5841. These were drawn to carry out the recommendations of the Public Domain Commission. Hearings before the House Committee on Public Lands will be held about the middle of January. Mr. Garfield first submitted these bills to Representative Colton with the request that he introduce them early in the present session. Mr. Colton declined on the ground that he would submit bills of his own which he believes are more in harmony with the needs of the western states.

On December 8, Representative Colton introduced his bills, H. R. 4151 and H. R. 4152. The first would provide for the creation of grazing districts to be administered by the Department of the Interior but with the immediate advice of local boards. The second would authorize the President to assemble all bureaus having to do with the administration of public lands under one department head.

In commenting upon Representative Colton's stand concerning the disposition of the Public Domain, Governor George H. Dern of Utah wrote, "My personal feeling is that the State of Utah cannot afford to accept lands which it is now proposed to turn over to the states. . . . . My opinion is that none of the other states will want to accept the lands on the basis outlined in the report. . . . . The portion of the report which I especially dislike is the inference that the work of administration and rehabilitation should be deferred until after this ten year period has expired. I think the Government should at once begin to administer the Public Domain and to inaugurate a program of rehabilitation regardless of whether the states accept the land or not. The Government allowed these lands to deteriorate and it should build them up again before asking the states to take them over."

Representative Leavitt of Montana has introduced his bill H. R. 4608 to amend the Clarke-McNary Act of 1924 and include erosion studies in the program of the Forest and Range Experiment Station. The passage of this amendment will eventually offset the recommended reduction of $10,840 for the erosion studies now being carried on by the several stations.

THE SNOWY EGRETS

(*Continued from page* 13)

crowded for their comfort start colonies in other parts of the marshland. The birds are so numerous that sticks must be furnished them for nesting material, for otherwise, they destroy the bushes by breaking off the small branches.

One may row a boat about the pond, and if no sudden movement is made the herons will not take alarm. The crack of a stick will send them squawking in all directions, however. The herons fly for a great distance to secure food for their young, many going at least twenty-five miles away, and when one is in the marsh in the late evening, he will see flocks of herons headed toward Avery, winging silently along.

Mr. McIlhenny had everything in readiness for our visit, with several blinds erected in favorable spots, so the birds would be used to them by the time of our arrival. The snowy egret and the Louisiana herons were found nesting in the same bushes, while the little blue herons seemed to hold themselves aloof, preferring the high bushes for their own. The nests seemed to be just out of jabbing distance of each other, and our cameras were placed so we could photograph any one of a dozen different birds. When we first rowed out to the blind, we made a great deal of disturbance and the herons flushed wildly, but after we were concealed they returned to their nests without loss of time—some to fold their long legs under them and settle upon the four pale blue eggs, some to hover over skinny, fuzzy babies, sheltering them from the heat of the sun with half-drooped wings, and others, to feed greedy fellows who begged for food with throaty, wheezy calls. Young animals of all species, from birds to humans, act the same way, as though they had had no food for a month.

The old egrets are extremely pugnacious and are ever alert to enter a quarrel. If a neighbor's youngster wanders from its own dooryard, into the premises of another, he is pounced upon by all the old ones in the vicinity and hurried on his way with vicious jabs of the needlelike beaks. The adults are at their best when they first return to their nests and are proudly displaying their recurved plumes, when they are showing their indignation and are attempting to prevent an invasion. They raise their crests and scapular feathers, so the delicate lacelike plumes are outlined against the black shadows, and after the wanderer has been ejected, the owner of the nest struts about in triumph. Then, if there is nothing to attract his attention, he settles down upon the eggs or young, and with head thrust slightly forward, is soon dozing. After seeing the same performance a hundred times, I could not help comparing the "flare ups" of the egrets with many in our own lives—we become insulted, indignant, or excited over things just about as important as a youngster stepping on the grass, and after all the trouble is over, we fold up just like the herons, and doze off, waiting for the next thing to worry about.

Up a Tree

The forestry controversy in New York between Governor Roosevelt and Al Smith ended with the latter up a tree.—*Greensboro Herald Journal.*

His Fear

Out on a camping trip, her father was trying to reason his little girl out of her fears. He tried to explain to her that there was nothing to fear in the woods.

"Papa," she asked, "ain't you afraid of bugs?"

"No, dear."

"Nor big ol' mountain lions?"

"No, dear."

"Ain't you even afraid of thunder and lightnin'?"

"No, dear."

"Papa, ain't you afraid of nothin' else in the whole world but just mamma?"—*Forest Pioneer.*

Evolution?

According to a scientific writer, our jungle ancestors sprang from lions, tigers, and other ferocious beasts. Well, who wouldn't?—*The Humorist.*

A Better Fly Than a Butterfly

In order to locate his ball when it goes into the rough, a California golfer soaks it in a chemical solution which attracts butterflies. A better plan would be to soak the ball with accuracy.—*Boston Transcript.*

He Detoured

"What's become of the young man who used to bring you all the flowers?"

"He married the girl at the florist's."—*London Opinion.*

The Last Drop

Brazil, which has a surplus of coffee, is burning it in locomotives. When they start burning it in airplanes, we'll take the brand that's good to the last drop.—*Detroit News.*

The Frog

What a wonderful bird he are.
When he stand, he sit almost,
When he hop, he fly almost.
He ain't got no tail hardly either.
When he sit, he sit on what he ain't got almost.—
Delaware Game Commission.

Swatted It

Owner of Small Car (who has crashed with a truck): "But couldn't you see me coming?"

Truck Driver: "I thought it was a fly on the windshield."—*Optimist.*

Poor Fish

Fisherman: "I'm in trouble again."

Friend: "Financial or family?"

Fisherman: "Family, this time."

Friend: "What's the trouble?"

Fisherman: "My wife says if I don't quit fishing that she will quit me."

Friend: "You have an awful good wife."

Fisherman: "Yes, I'm sure goin' to miss her!"—*Forest Pioneer.*

For Sale

"Jest as I expected! They've gone to sellin' the weather!"

"Whatcha mean—sellin' the weather?"

"Look at that sign: 'August Fur Sale.'"—*Jefferson County News.*

"Now, George, just give me one little push"—

Dark Africa

Strange ailment is said to be affecting the eyes of wild lions in Africa. Could it be Kleig eyes?—*Arkansas Gazette.*

No Grade Crossings There

A train in England, the Cheltenham Flier, travels seventy-seven miles per hour. Motorists at grade crossings are going to find it hard to hit.—*Life.*

On the Job

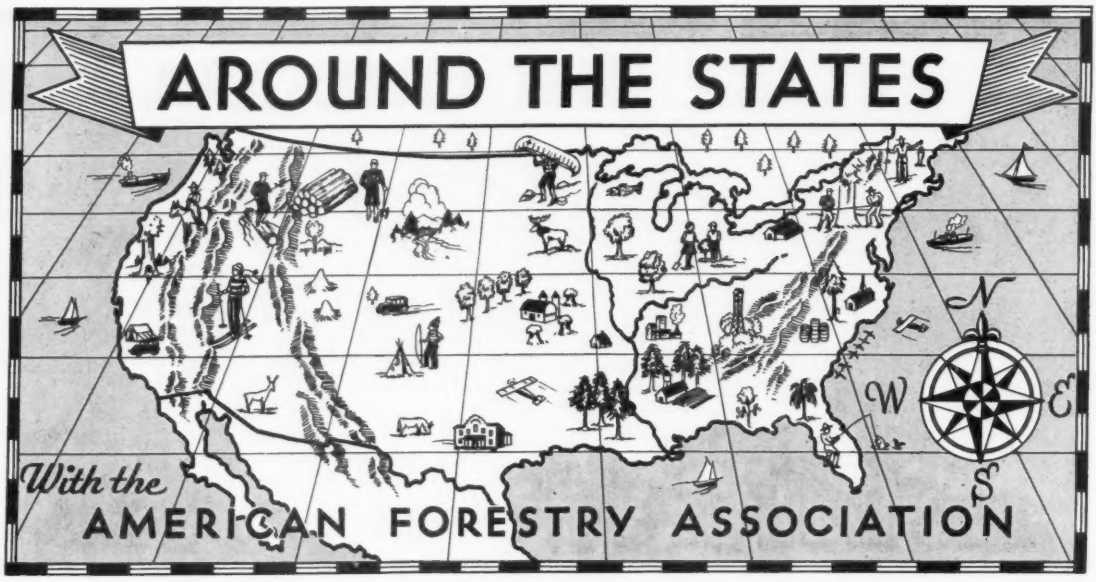
Maid: "While you were gone, ma'am, little Willie swallowed a bug, but don't worry. I had him take an insect powder."—*Southern Farmer.*

Slogan

Fire-prevention slogan: "A match may be down but not out."—*Florence Herald.*

A Good Job

Extraordinary yields from the Gotham plum-tree are the result, it appears, of expert grafting.—*Weston Leader.*



Game Preserve Given New Jersey

The creation of a giant hunting and fishing preserve open to the public on approximately 20,000 acres of land in the Ramapo Mountain section of northeastern New Jersey, which will have for its triple aim the conservation of existing fish and game supplies, the propagation and stocking of both new and old game and fish species, and the eradication of natural game destroyers, has been announced by Erskine Hewitt, president of the Ringwood Company, and representing property owned by the company, Mr. Hewitt, and Norvin H. Green.

This great preserve, it is pointed out, will be one of the largest of its kind in the East, and the only one of its nature within or near the metropolitan area. The preserve will be in keeping with the wish of its creators to maintain within the Ramapo Mountains, long admitted by hunters and anglers to be the last of the great game sections near New York city, a plentiful supply of wild life attractive to sportsmen.

The preserve will be created, Mr. Hewitt said, shortly after the termination of the present hunting season in New Jersey, although the majority of the work will be done after the first of the year. Already certain game protective measures are under way, he said.

In outlining the steps to be followed in forming the preserve, Mr. Hewitt stressed the importance of protecting the game from natural enemies and of posting this great acreage, which will be done in the most conspicuous manner possible. This posting will enclose a large section of land lying to the west of Greenwood Lake and stretching from the southern end of the lake northward to the New Jersey-New York State line. A second section will run unevenly southward from the State line to a point south of Lake Erskine, Cupsaw and Upper lakes, lying to the east of the Wanaque Reservoir. The third, and by far the largest section, will comprise a majority of all land lying west of the reservoir and extending to the highway running northward from Charlottesburg, at the same time encompassing practically all property from Wanaque-Midvale on the south to the State line on the north. All three sections are contiguous.

It is proposed that this acreage be patrolled by wardens at all times of the year, both to restrict poaching and to enforce existing game laws in season.

Eminent Botanist Honored

Dr. Frederick V. Coville, distinguished scientist of the United States Department of Agriculture and Acting Director of the National Arboretum in Washington, has been notified of the award to him of the George Robert White Gold Medal of Honor in recognition of his botanical achievements and experiments. This

Frederick V. Coville

is the highest horticultural award in America and is bestowed by the Massachusetts Horticultural Society, the oldest organization of its kind in this country.

Dr. Coville, who is also chairman of the Research Committee of the National Geographic Society, has made many interesting studies and experiments which have comprised many years of diligent and ingenious research. His many accomplishments have greatly enriched the scientific knowledge of the world. One of his most notable achievements is the productivity of the blueberry on former waste lands in the northeastern portion of the United States, which, last year, yielded a crop of 10,000 bushels of blueberries heretofore grown only in a scattered, wild state.

Other important endeavors, embracing a method of restricting sheep grazing in the National Forests have conserved vast tracts of valuable forage, permitted their economic utilization, and yielded the United States Government a revenue of $2,000,000 a year in grazing permits.

In 1891 Dr. Coville made the first botanical survey of Death Valley, in California. His published findings on the plant life of the region are, even today, regarded as the most authentic works on that subject.

Dr. Coville, an author of note, is co-author of "Standardized Plant Names" which gives the proper spelling of more than 20,000 species of plants and their main botanical varieties commonly cultivated in the United States.

Public Domain Bills Introduced

Two bills designed to carry into law the recommendations of President Hoover's Public Domain Committee have been introduced in Congress. They were presented by Congressman Evans of Montana, the new Chairman of the Public Lands Committee. One bill incorporates the Committee's recommendations in respect to unification of Federal agencies now concerned with the Public Domain and the conservation of natural resources. It would give the President of the United States broad authority to consolidate and coordinate the executive and administrative bureaus, agencies and offices concerned with "the use and disposition of the public domain, the administration of the national reservations and the conservation of natural resources." The bill does not designate the department in which the work is to be consolidated.

The other bill deals with the Committee's recommendations for the administration and

disposal of the Public Domain. Its purpose is stated in the following language: "To grant vacant, unreserved, unappropriated, nonmineral lands to accepting States, and to authorize the President to establish national ranges in nonaccepting States; to create a board authorized to determine as to the disposition of certain areas of public domain; to enable the United States, the States, and individuals to exchange lands for the consolidation of mingled areas, and granting lands to certain States to achieve that purpose; to provide for the control, disposition, and protection of stock-watering places and of intrastate and interstate stock driveways; and for the conservation of grazing resources, and for other purposes."

The provisions of the bill are stated in nine sections. Section One provides a broad grant, with certain exceptions, of all vacant unappropriated and unreserved nonmineral public lands of the United States to the respective public land states, conditioned upon the states formally accepting them and subject further to the retention by the United States of any lands that have been classified as mineral in character. A further reservation is provided for the acquisition of rights or easements under laws of the United States applicable for rights of way, highways, reservoirs, canals, power plants, etc., upon the lands granted to the states.

Section Two provides that the lands granted shall be held in trust by the states receiving them for the support and maintenance of common schools and higher educational institutions. It provides that there shall be established in the state university or any state college designated by the state legislature, a department to be devoted to the study of range conditions and the dissemination of knowledge concerning watershed protection, erosion, floods, etc. Not less than five per cent and not more than twenty per cent of the gross income derived by the accepting state from the lands shall be devoted to the maintenance of this department. In addition a mandate is laid upon the state legislature to set aside from the lands granted, two or more agricultural or range experiment stations to be administered by the department.

Section Three provides that the grant lands "shall not be sold or otherwise disposed of except to the highest and best bidder at a public auction" after due and adequate advertising of the sale. This section contains the following proviso: "That nothing herein contained shall prevent said State from leasing for any purpose the lands herein granted for a term of five years, or less, with the option in the lessee, his successors or assigns, to renew for a like period, or successive like periods, upon such terms as the legislature may prescribe, without said advertisement."

No land shall be sold without reservation of minerals in the state and none disposed of for less than three dollars an acre. When so provided by the state legislature, however, lands within areas having a rainfall averaging four inches, or less, may be sold to bona fide settlers for a price less than the foregoing minimum. Section Three further provides for a state trust fund for the handling of all monies derived from any of the lands granted to the states.

In the event a state does not desire to accept the public lands, it may, under Section Four of the bill, make application to the President of the United States and have the lands declared a national range administered and regulated by the Federal Government. The President may include in such "national ranges" all public lands withdrawn for mineral or other purposes when grazing use is not inconsistent.

Section Five provides that if a state does not take advantage of the grant offered within a period of ten years the President of the United States is authorized to establish national ranges as described in Section Four.

Section Six excepts from the grant made in Section One certain described lands proposed by the Forest Service as new or additions to existing national forests, until such time as a determination shall be made of what land within the areas described shall be retained by the Federal Government for national forest purposes. When such determination has been made the lands remaining shall pass to the accepting states.

Section Seven provides the machinery for making the determinations mentioned in Section Six. It creates a board for each public land state having within its boundaries more than 400,000 acres of public lands. This board would be composed of five members, one appointed by the President, one each by the Secretaries of Agriculture and Interior, and two by the Governor of the state. The board is charged within one year from date of the approval of the Act to determine:

1. What areas shall be added to existing national forests, these areas to be limited to lands "chiefly valuable for forest purposes except upon the request of the state involved;"
2. What, if any, areas not chiefly valuable for forest purposes, including watershed protection, within existing national forests shall be returned to the Public Domain;
3. What consolidation of areas can be brought about to correct and round out the boundaries of national forests;
4. What reservations should be made for national defense and reclamation purposes, reservoir sites, national parks and monuments, air ports, and migratory-bird refuges.

Lands excluded from existing national forests under (2) above shall be included in the grant to the states.

The Section further provides that if a majority of the board, or in the case of a selection for national defense, or reservoir site on interstate streams, two members thereof concur in a request that a described area be reserved for any purpose detailed in (4) the area may be excluded from clear listing until further study can be given it.

The board is further given power to recommend to the Secretary of the Interior the return to the Public Domain of lands within ex-

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isting reservations, withdrawals, and classifications, other than those involved in (1), (2), (3), and (4) above, which in the opinion of the board have ceased to be useful for the purpose of their reservation and withdrawal. If the Secretary approves, the lands recommended shall be eliminated and passed to the accepting states.

Sections Eight and Nine provide authority for the Government to exchange lands with states and private owners in order to consolidate ownership for more effective administration.

Section Ten provides that present withdrawals and reservations for the protection of stock-watering places and stock driveways when wholly intrastate, shall be returned to the public lands at the discretion of the Secretary of the Interior when they are shown to be no longer required for those purposes. Lands so returned would pass with a grant to the state.

Section Eleven provides that the Act shall not be construed as repealing any laws now in force providing for Federal aid for the construction of highways in public-land states.

Land Acquisitions for Bird Refuges Approved

The Migratory Bird Conservation Commission, of which the Secretary of Agriculture is chairman, early in December authorized acquisition of lands by the Bureau of Biological Survey for ten migratory game-bird refuges in New York, Maryland, North Carolina, South Carolina, Florida, Nebraska, North Dakota, Wyoming, and Nevada. The area amounts to 43,227 acres. The cost to the government will average $5.74 an acre.

Including the lands approved, 154,744 acres have been authorized by the commission for acquisition by lease and by purchase since the migratory-bird refuge program was initiated in 1930. In addition, 65,970 acres have been set aside by Executive order and Presidential proclamation, making a total of 220,713 acres established or in the process of being established as inviolate Federal sanctuaries for migratory birds. Refuges have been established in California, Nevada, Montana, Wyoming, North Dakota, Nebraska, Oklahoma, Florida, South Carolina, North Carolina, Maryland, and New York. The average cost per acre of all lands approved for purchase under the act is $4.30.

In New York the commission authorized the leasing of lands for the Hempstead Migratory Bird Refuge, an area of 2,274 acres of land and water adjacent to Hewlett, Long Island. Because it is on the Atlantic coast flight route of migratory birds and near to the metropolitan area of New York this is considered an important link in the eastern chain of refuges. An outstanding acquisition approved by the commission is the Blackwater Migratory Bird Refuge on the eastern shore of Maryland. This unit, situated about ten miles from Cambridge, contains approximately 10,000 acres.

In the Swanquarter Migratory Bird Refuge in Hyde County, North Carolina, acquisition of 3,600 acres contiguous to tracts previously approved was authorized Acquisition in South Carolina of approximately 414 acres of land, will completely consolidate government-owned lands in the Cape Romain Refuge. The total area in this unit is now about 33,000 acres. The commission also approved the acquisition of 5,285 acres for the St. Mark's Refuge in Florida.

Crescent Lake Bird Refuge, Nebraska, in accordance with the authorization, will be extended by the acquisition of 1,688 acres. By approving the acquisition the commission took steps looking to the establishment of the first federal migratory-bird refuge in that State.

$7,000,000 to Combat Fires

Funds aggregating $6,607,058 for preventing and suppressing forest fires have been made available for the fiscal year 1932 for the thirty-eight states and territories cooperating with the Forest Service under the Clarke-McNary law, the Department of Agriculture announced recently. State, federal, and private funds make up the total, which shows a gain of $412,878 over the last fiscal year, ending June 30, 1931.

The larger share of the state and private funds budgeted is for forest fire prevention. The grand total of state and private funds for both prevention and suppression for the year is set by the state budgets at $5,034,520, against $5,062,813 for the last year. State forest fire prevention budgets amount to $3,000,660, and state suppression budgets to $789,941. Funds from private sources total $972,862 for prevention and $271,057 for suppression. The cooperative federal allotment to the states amounts in all to $1,572,538, which is $46,986 more than last year.

A considerable proportion of federal, state, and private funds budgeted have already been expended since the beginning of the current fiscal year. Part of the money is used in the winter months in construction of firebreaks, forest trails, lookout towers, and telephone lines.

California's cooperative budget for forest fire protection is largest, with $764,940 in combined state, federal, and private funds available. Other states with more than $300,000 available from all sources are Michigan, Washington, Wisconsin, New York, Oregon, Minnesota, Maine, Idaho, and Pennsylvania. Nevada and Hawaii joined the lists of cooperators in fire protection for the first time this year.

Gaston Succeeds Ladd in New York

Herbert E. Gaston has been named deputy conservation commissioner with the New York State Department of Conservation at Albany to succeed Dr. C. E. Ladd, who resigned to return as director of extension at the New York State College of Agriculture. During his period as deputy commissioner Dr. Ladd helped develop new policies for the propagation and distribution of game birds and fish. Mr. Gaston has been secretary to the Department of Conservation since April 1, 1931.

State Foresters Tour South

State foresters from thirty states viewed southern pine forest conditions from Savannah, Georgia, to St. Augustine, Florida, during their twelfth annual meeting, from November 16 to 19, inclusive. Between banquets tendered them by the forestry associations of each state the delegates visited the plants of the Georgia Creosoting Company and the Hercules Powder Company at Brunswick, Georgia, the Sessoms timber properties at Cogdell, Georgia, and the tract of the Superior Pine Products Company at Fargo. In Florida they saw the Naval Stores Laboratory and Experiment Station on the Ocala National Forest, the Florida State Forest Nursery and demonstrations of fire line construction with tractors and plows.

On the campus of the University of Florida, at Gainesville, they participated with the student body in the dedicatory planting of a live oak tree as a George Washington memorial. State Forester J. S. Holmes, of North Carolina, delivered an address, and each state forester threw on a shovel of earth as his name and state were called.

Evening meetings were held at Savannah and Ocala when State Forester Fred Merrill, of Mississippi, and Director E. L. Demmon, of the Southern Forest Experiment Station, discussed fire and longleaf pine reproduction.

Ben E. Bush, of Idaho, was elected president to succeed E. O. Siecke, of Texas. C. P. Wilbur, of New Jersey, replaces State Forester Bush as vice-president.

Tribute Paid Forestry Leader

At a meeting of the New York State Reforestation Commission on December 2, State Senator Charles J. Hewitt was the recipient of a silver loving cup presented to him by his commission associates as a tribute to his leadership in bringing about the passage of the forestry amendment in the recent election. The meeting was to have marked the conclusion of the four years' work of the Commission, but at the suggestion of Conservation Commissioner Henry Morganthau, Jr., the Commission accepted the responsibility of supporting some supplemental legislation that will be necessary to clarify the work of the Conservation Department in carrying out the new reforestation program.

National Grange Opposes Giving Public Lands to States

The National Grange at its 65th Annual Meeting in Madison, Wisconsin, last month passed a resolution declaring that a comprehensive land policy should be started at once looking toward the guidance of public action affecting farm lands and lands of other classifications. The resolution expressed the belief that the United States does not need policies to stimulate agricultural expansion. It declared that there is an obvious need for the coordination of the activities of federal and state agencies in the development of a land policy and that the Land Grant Colleges and universities can contribute an essential element not only in bridging the gap between federal and state interests, but in assuring that partisan politics may be ruled out of the picture.

Among other things, the resolution recommends as the policy of the National Grange:

"The remnants of the Public Domain should not be turned over to the States, but a comprehensive national land policy should include provisions for better consolidation of federal and state holdings, and for the administration of the public land, through reforesting or otherwise, so as to insure conservation and avoid improper use of this natural resource.

"The forestry laws of the nation and the states should be so broadened as to permit purchase of submarginal agricultural land, whether suitable for forest purposes, recreational uses, or game preserves.

"In the case of lands under federal control, the administration of oil, mineral, or other subsurface uses should be separated from the administration of the agricultural, forestry and other surface uses, the administration of the latter to be entrusted entirely to the United States Department of Agriculture and so far as practicable to a single bureau charged with their conservation."

The resolution further declares against the use of federal, state or other public money in further development of land for agricultural purposes, except in the case of economically feasible projects already in existence. The resolution closes with the declaration that "the future of the nation will largely depend on our present ability to shape a program of land utilization which will discourage agricultural overproduction, devote land to the uses to which it is best adapted, conserve our resources, coordinate agriculture with forestry, preserve the beauty of the countryside, and provide adequately for our future needs for timber."

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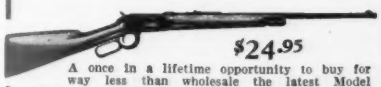

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GOOD TURN FOR FORESTRY BY GETTYSBURG SCOUTS

Pennsylvania Lone Scouts set the mark for nutting expeditions when they brought in ninety bushels of walnuts on their Gettysburg pilgrimage on the anniversary of the birth of William Penn in October. Assembling at their state monument on the battlefield, they made the greatest contribution to date in "working capital" to the project which has for its goal the planting of seeds from nut trees, and received the congratulations of the Council of the National Nut Tree Planting Project and of the Pennsylvania Department of Forests and Waters.

A group of Rural Boy Scouts who made the Nutting Day Pilgrimage to Gettysburg on October 24th and gathered ninety bushels of black walnut seed—which the picture shows here piled at the foot of the Pennsylvania Monument. Officials present were: Ray F. Zaner, Scout Executive; Edwin T. Moul and Thomas MacAuley, Field Scout Executives; Fred Tyson, Tribe Scoutmaster; Mr. Frost and Mr. Osbourne, Tribe Committee Members; Rev. Mr. Sternot, Dean of Gettysburg College; C. A. Reed of the National Nut Tree Planting Project; George H. Wirt, State Forester of Pennsylvania and Rural Scout Director O. H. Benson, of the National Boy Scouts.

Under the leadership of Scout Executive Ray F. Zaner, of the York-Adams County Area, the scouts provided enough walnut seeds to carry the name and story of Gettysburg into all parts of the nation. Because of the good turn that they accomplished, thousands of walnut trees will be added to the countryside through the distribution of the seeds by the National Nut Tree Planting Project which is sponsored by the Department of Agriculture, Boy Scouts of America, The American Forestry Association, and American Walnut Manufacturers' Association.

After a small mountain had been created by bags filled to bursting, a ceremony was held in which Mr. Zaner presented the nuts to the Council in charge of the project. C. A. Reed, associate pomologist of the United States Department of Agriculture and chairman of the Council, received the gift, congratulating the scouts on making an outstanding contribution to conservation.

George H. Wirt, Chief Forest Fire Warden of Pennsylvania, was the speaker. He encouraged the scouts in the collection of nuts, but urged them to do even more by actually planting trees wherever and whenever they had the opportunity.

O. H. Benson, National Director of Rural Scouting, was the spokesman for the New York headquarters of Boy Scouts of America. That every boy might have the thrill of going nutting in the woods in the fall of the year was an object he hoped would be attained as well as the more serious purposes of the project.

Individual members of the Adams County Lone Scout Tribe who had helped to make their campaign one of the most important, if not the most important, were commended by Mr. Benson for their good turns for forestry. Clyde Sowers, chief of the tribe, himself gathered and brought in twenty-five bushels of walnuts. Last year's champion nut seed collector and this year's runner-up was Charles Lott, who brought in sixteen bushels of walnuts. Maurice Musselman made an individual contribution of ten bushels and Henry Vincen, seven.

The Gettysburg pilgrimage was not modelled after the one at Mount Vernon, led by Vice President Curtis when the Scouts actually spent the afternoon gathering nuts. Instead, the boys had already made their hauls and were bringing them in to present them. The day was in the nature of a celebration. They went sight-seeing over the battlefield, visiting the various monuments and the ceremony climaxed their participation in the nut tree project.

Similar well-planned nut gathering programs have been staged on a large scale in Wisconsin, Oklahoma, and Virginia. Extension Forester F. B. Trenk directed the Wisconsin Scouts, 4-H Clubs, and other groups in a campaign to locate historical grounds and to gather nut seeds. State Forester George R. Phillips has arranged a program of cooperation between Boy Scouts of Oklahoma and the Forest Service which calls for the collection of seeds in the section of the state containing nut trees and the distribution of them in unforested regions.

FORESTER'S REPORT SEES BEST USE OF SOIL AS GOAL IN PUBLIC FOREST POLICY

The best use of the soil must be the common goal of long-time public policies in forestry, agriculture, and public-lands utilization, said R. Y. Stuart, chief forester, in the annual report of the United States Forest Service.

"Lack of economic balances and lack of stability conspicuously characterize the relationships between forest use and forest resource," Mr. Stuart said. "The causes are deep-seated, and the resulting maladjustment is chronic, not temporary. In this respect, it bears a close resemblance to the maladjustments that afflict agriculture. Indeed, the forest problem and the agricultural problem are in many ways interrelated. Both call for foresighted planning and wisely directed public and private effort to adjust production to needs and to bring about the utilization of our vast land resources along lines that will contribute most to our permanent national welfare."

The unwisdom of enlarging further the area of cultivated land through the clearing of forest lands that have low value for agriculture is now realized, according to the forester's report. It is becoming widely recognized that a great deal of land has been mistakenly cleared, and that it is of great public importance to grow forest crops as a means of utilizing lands that agriculture will not employ. Intensive forest production should be allocated to lands where production is most effective and most needed, Mr. Stuart said. The remainder, under proper ownership and control, can serve the needs of the nation for water conservation, for grazing, for recreation, and in other ways until it is required for more intensive use.

Under the National Forest program, says the report, the lumber industry has resources for permanent production instead of resources which are continually vanishing. The industry has based its plans on liquidating resources and now must make a gradual readjustment of the financial basis of the industries, as well as of manufacturing and sales policies, to a long-time program. The only adequate and final cure is production based on sound land use.

"The lumber industry," the report says, "has always been essentially unstable, in the sense that as an exploitative industry it has been shifting. Its individual establishments have been temporary, moving from one location to another as new stumpage supplies became necessary, while the industry as a whole has been moving its center from one great forest region to another as regional depletion of the virgin timber stands dictated. It can shift no farther.

"Now the lumber industry is unstable for another reason. In an effort to liquidate its Pacific Coast holdings at the favorable prices which it had built up, its sawmill capacity has been overdeveloped. There is created the dual problem of reducing sawmill capacity and simultaneously revising timber-holding policies from a liquidating to a sustained-yield basis."

In several Western States, according to the report, cutover lands are becoming tax delinquent on an alarming scale. Considering all the difficulties and uncertainties involved in substituting forest management for forest disposal, State policies that will assume a reasonably stabilized ownership of timberlands must evolve gradually. The problem would be much greater had not the federal National Forest policy provided a stable form of ownership for much of the forest land in the West.

"While the maintenance and in some cases the extension of the National Forest system have hearty approval practically throughout the West," says the report, "from time to time there are proposals that threaten the integrity of the system, under the guise of advocacy of a federal land donation from the National Forests, for the benefit of some special local public need or state interest. Several such proposals have been advanced recently, and have had strong backing. If it became customary to grant to the Western states portions of the National Forests for one local need or another, movements to obtain similar grants would multiply until the whole system would become riddled and finally would disintegrate, with incalculable injury to the West and the nation."

In providing work for the unemployed under emergency appropriations for various protection and improvement projects, the Forest Service gave temporary work to many men. The number of temporary employees in January was 5,216, and in June 21,658, the latter including many employed to fight forest fires. The greater part of the expenditures for unemployment relief went for road and trail construction. Other improvement work which the Forest Service speeded up included construction of telephone lines for fire control, permanent fire breaks, lookout cabins and towers, and improvement of public camp grounds and ranger stations.

Foresters Elect Granger President

C. M. Granger, director of the National Survey of Forest Resources with headquarters in Washington, D. C., was elected president of the Society of American Foresters to succeed Paul G. Redington, Chief of the Biological Survey, who has been president for the past four years. President Redington will preside at the annual meeting of the Society in New Orleans, on December 29, 30 and 31, and the newly elected president will begin his term on January 1, 1932, to continue for four years.

John D. Guthrie, assistant regional forester in charge of public relations at Portland, Oregon, was reelected vice president, and the following men were elected to the Council: E. L. Demmon, of New Orleans; A. F. Hawes, of Hartford, Connecticut; Hugo Winkenwerder, of Seattle, Washington; and C. F. Korstian, of Durham, North Carolina. The newly elected members of the Council will serve with the following men whose term of office extends into the next four years: Clifton D. Howe, of Toronto, Canada; S. B. Show, of San Francisco, California; Ralph S. Hosmer, of Ithaca, New York; and C. R. Tillotson, of Amherst, Massachusetts. The retiring president will also serve on the Council.

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Book News and Reviews

MEN OF THE TREES, by Richard St. Barbe Baker. Published by the Dial Press, New York; 283 pages—illustrated. Price $5.

This book is about Africa, of strange lore, strange lands and primitive people. The author tells of people never before seen by white men. He tells of strange gods and strange beasts. The book is rich in story and anecdote, full of a strange power to transport the reader to the heart of the unexplored jungle of the tropics. Lowell Thomas, who wrote the introduction, says, "you sense the singular turn of poetry and exultation in a man who is in love with trees." That, in itself, makes the book invaluable.—E. K.

TALES OF TAHITIAN WATERS, by Zane Grey. Published by Harper & Bros.; 303 pages—illustrated. Price $7.50.

Fishing stories are not merely fishing stories when told by Zane Grey. They are thrilling experiences. To his already famous fishing tales he adds many delightful new ones in "Tales of Tahitian Waters."

Aboard his yacht, *The Fisherman*, this novelist-angler spent the better part of three years around the magical little island of Tahiti fishing its blue crystaline waters for the tuna, sailfish, swordfish, wahoo, and strange varieties of fishes as yet unclassified by scientists. From these years, Zane Grey gives us, in his most interesting manner, these tales of Tahitian waters in which one can enjoy the sport of catching a large fish, or feel the keen disappointment of losing one. Interwoven with the story is the calm and peace of Tahiti tiself. To read it is a delightful experience—and a profitable one.—J. N.

IN DEFENSE OF BEAUTY, by Katherine Scarborough. Published by Fleet-McGinley, Baltimore, Maryland; 48 pages—illustrated. Price $1.

This is the story of the Battle of the Cedars which raged with much sentiment, much drama, and much destruction throughout the great apple orchard regions of Maryland, West Virginia and Virginia some months ago, and which is still active on several fronts. It is also a plea for the cedars—aged landmarks in the great apple regions—which, it is admitted, "lost in glory." A worth-while little book.—E. K.

TREES IN WINTER, by Albert Francis Blakeslee, Ph.D., and Chester Deacon Jarvis, Ph.D.; Published by the Macmillan Company, 60 Fifth Avenue, New York City. 292 pages. Price $2.00.

To meet the practical requirements of students of botany and forestry, the authors have attempted to simplify the study and identification of the more common trees growing wild in the northeastern portion of North America, New England, and neighboring regions. The result is a handbook of definite, comprehensive material devoted to the study of trees by their distinguishing characteristics during the leafless season.

This descriptive volume is arranged in the form of an inventory with brief paragraphs devoted to the habit, bark, twigs, buds, fruit, etc., of the individual trees and illustrated with photographs depicting the dominant points discussed. An analytical key to genera and species is included in the book as an aid to the study.

This book is an abridgement from the larger volume bearing the same title and should be widely accepted by students for its authoritative and complete material on tree study and identification.—D. H.

THE LIFE STORY OF BEASTS, by Eric Fitch Daglish. William Morrow and Company, New York. Price $3.00.

The New York *Times* has said—"A new book by Eric Daglish is an event"—a comment amply borne out by this latest contribution from the pen of the distinguished naturalist and artist. In tracing the life story of the beasts, he tells of their individual characteristics, of their peculiar feeding habits and their homes and the intelligence they bring to bear in solving their problems. He tells of their hunting, of their being hunted, of their courtship and family life, and he gives this authentic information in such a fascinating, intimate way that his book is lifted out of the usual natural science field into that of story. It will be read with eager interest and appreciation. The text is illuminated by strikingly beautiful woodcuts, smooth and clear in detail, which point the text and add great distinction to the volume.—L. M. C.

OUR WILDERNESS NEIGHBORS, by Dorr G. Yeager. Published by A. C. McClurg and Company, Chicago, Illinois; 160 pages. Liberally illustrated. Price $1.25.

The author, who is an Assistant Park Naturalist of Yellowstone National Park, describes the wonders of this wilderness preserve and its interesting inhabitants. His book deals first with the history of the region, dating back to the days when "game preserves were practically unknown, for America had not yet begun to awaken to the fact that her natural fauna was gradually but surely disappearing before the onslaught of civilization."

Throughout the book, Mr. Yeager weaves his sympathetic appreciation of the wild animals that through protective legislation have been given a refuge wherein they may propagate in safety amid natural surroundings. He tells of the natures, moods, reactions, and other characteristics of the American bison, mountain sheep, elk, deer, moose, prong-horned antelope, bear, cougar, lion, and many other wild animals which—here in the Yellowstone—comprise a representative part of the remaining vast herds that roamed the forests in the early days.

The book presents an opportunity for study of the Yellowstone and America's remnant wild life heritage, and at the same time provides a source of pleasurable entertainment. The book is brief, yet comprehensive and is illustrated by excellent photographs.—D. H.

AMONG THE CURRENT PUBLICATIONS

Planting Longleaf and Slash Pine, by H. M. Sebring and Jack Thurmond. Issued by the Georgia Forest Service, Atlanta, Georgia. When, where and how to plant made clear.

Thinning Experiments in Young Douglas Fir, by W. H. Meyer. Issued by the Department of Agriculture with the cooperation of the Association of Land Grant Colleges and Universities, Washington, D. C.—Results of studies conducted in the State of Washington.

Farm Forestry: A Concrete Example, by Wilbur O'Byrne, extension forester of Virginia. Issued by the Virginia Agricultural and Mechanical College and Polytechnic Institute, Blacksburg, Virginia.—The practical side of farm forestry with good suggestions for the farmer.

Artificial Reseeding on Western Mountain Range Lands, by C. L. Forsling and William A. Dayton, United States Forest Service. Issued by the Department of Agriculture. Price, 15 cents.—Results of experiments conducted on National Forest lands in the West.

Survey of Conditions Affecting Fisheries in the Upper Mississippi River, by M. M. Ellis, Ph.D., Bureau of Fisheries. Issued by the Department of Commerce, Washington, D. C. Price, 5 cents.—General conditions dealt with, but particular study is given to proposed construction around Lake Keokuk.

Collecting and Marketing Black Walnuts, by F. W. Besley, state forester of Maryland. Issued by the Maryland Department of Forestry, Baltimore.—Brief review of walnut conditions in Maryland and suggestions to develop them as a crop.

You Can Make It for Profit, released by the National Committee on Wood Utilization, Department of Commerce. Washington, D. C. Price 10 cents.—Plans, lists of materials, and instructions for making more than 100 articles of wood for home convenience.

Game Laws for 1931-32, released by the Department of Agriculture, Washington, D. C. Price 5 cents.—A summary of the provisions of federal, state and provincial statutes.

Forest Types in the Southwest as Determined by Climate and Soil, by G. A. Pearson, director, Southwestern Forest and Range Experiment Station, Forest Service. Released by the Department of Agriculture, Washington, D. C. Price 30 cents.—A thorough presentation of forests, soil and climate in the Southwest.

The Southern Forestry Educational Project—Final Report, released by The American Forestry Association, Washington, D. C. Price 5 cents.—A general summary of the educational campaign against forest fires in four southern states.

The Present and Future Role of the Airplane in Forestry, by Howard R. Flint, Forest Service, Missoula, Montana.—Some special uses of the airplane in fire control, insect control and forest administration.

House Insulation, Its Economies and Application, released by the National Committee on Wood Utilization, Department of Commerce, Washington, D. C. Price 10 cents.—Report of the house insulation investigation by the Committee, dealing with methods, materials, costs and types.

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New York Adds to Its Forests

Henry Morgenthau, Jr., Conservation Commissioner of New York, announced on December 8, that the State has added 9,080 acres to its forest preserves. The newly acquired land is largely in small tracts, excepting for 2,800 acres in Herkimer County and 2,400 acres in Fulton County.

Purchases approximating 7,604 acres were in the Adirondack Park and were purchased for an average price of $7.29 an acre. The remaining areas purchased, totaling 1,475 acres, will augment the Catskill Park. These areas were acquired for $8.15 an acre, and the total cost was $67,468.

Edward Hines, Lumberman, Dies

Edward Hines, of Evanston, Illinois, president of the Edward Hines Associated Lumber Interests, and a director of the National Lumber Manufacturers' Association, died at his home, December 1.

Mr. Hines, in 1902, was elected the first vice president of the Association and served as its president from 1909 to 1911. He also took an active interest in the Northern Hemlock and Hardwood Manufacturers' Association and the Western Pine Association. At one time he served as a vice president of the American Forestry Association.

Water Birds Enjoying Protection

Reports from wardens and field agents of the National Association of Audubon Societies indicate that the various colonies of seabirds and other water-birds along the Atlantic and Gulf Coasts are enjoying a greater degree of protection than ever before in the history of wild-life conservation.

During the nesting season which has just past, the association employed thirty-five wardens, or sanctuary superintendents. Evidence of the constructive results of this protection are indicated, it was stated, in the following summary of reports submitted by them:

"Two investigators, after covering the entire coast of Maine, and visiting more than 200 islands, observed colonies of breeding sea birds on 111 islands. The most abundant species was the herring gull, which was found nesting on seventy-seven islands all along the coast, the colonies ranging from twenty-five to 8,000, a conservative estimate totalling 55,000 breeding adults. Small colonies of puffins, reported to have increased considerably, were found on two islands, while black guillimots, which in 1903 nested on fourteen islands to the number of 150 birds, were found on twenty-four islands totalling about 600 birds."

Locke Becomes Conservation Director of Walton League

S. B. Locke, assistant biologist, United States Biological Survey, assigned to the Intermountain Forest and Range Experiment Station, Utah, has been appointed conservation director of the Izaak Walton League of America, succeeding Seth Gordon, who became secretary of the American Game Association.

Mr. Locke was graduated from the University of Maine and the Yale Forest School. In 1910 he became associated with the Forest Service, serving as supervisor until 1919 when he was placed in charge of the fish and game work in the Intermountain Region, at Ogden, Utah. He is a Fellow in the Utah Academy of Science.

Duck Restoration Features National Game Conference

Restoration of the wild ducks of America was the question of paramount interest that ran through the eighteenth annual meeting of the American Game Conference in New York, December 1-2. The conference brought together over 300 sportsmen from all parts of the United States and Canada and the reports of conditions prevailing throughout the duck country were in most instances of an alarming nature.

A. E. Etter, Game Commissioner of Saskatchewan, Canada, pointing out that the main breeding grounds of the wild ducks of America are in Canada, told the conference that ducks were alarmingly scarce in his province this fall. He said that due to drought and agriculture development, he did not believe that a single duck was raised to maturity in the best breeding grounds in Saskatchewan the past summer. He predicted that at the present rate of duck depletion, duck shooting in America will be over in two years. "If the sportsmen are going to continue to shoot ducks," he declared, "they will have to go down in their pockets immediately and dig up money to provide breeding and feeding refuges."

Hon. George Hoadley, Commissioner of Agriculture of Manitoba, laid the duck shortage primarily to the slaughter of birds by gunners. He said that Canada has the breeding grounds but that the future of the wild ducks is in the hands of the United States. "If the United States will send us the breeding stock," he said, "we will send back the shooting stock."

Critical conditions were reported in North Dakota by State Game Commissioner Burnie Maurek, who declared that the northward flight of ducks last spring was not fifty per cent of normal. During the past summer, he said, ninety per cent of the water areas in North Dakota where ducks normally feed dried up, forcing the birds to concentrate on the few remaining areas.

After a spirited discussion of the situation and methods of meeting the exigency, the conference on Wednesday morning adopted a report submitted by the Game Policy Committee providing that the method of financing a restoration program be referred to a special committee of five to be selected as follows: two by the proponents of a Federal license tax of $1.00 on duck hunters, two by the proponents of a Federal sales tax on ammunitions and the fifth member to be selected by the four first named.

The opening session of the conference on December 1 was devoted to a discussion of ways and means of promoting the farmers' interest in a game crop and of methods of upland game management. Paul G. Redington, Chief of the Biological Survey, presented the waterfowl situation at the afternoon session and Dr. T. Gilbert Pearson, President of the Audubon Societies, spoke on the protectionist's relations to wild life programs. Dr. Pearson declared that the waterfowl shortage has become so critical that a one-year moratorium on duck shooting is merited.

The sessions of the conference on Wednesday were devoted to discussions of game breeding, the duck situation, progress of research and the election of officers for the ensuing year. David H. Madsen, of Salt Lake City, is the newly elected chairman of the conference. Vice-chairmen elected are E. Lee LeCompte, of Maryland: Hoyes Lloyd, of Canada; Aldo Leopold, of Wisconsin, and Guy Amsler, of Arkansas.

Among the speakers at the afternoon session and the evening banquet were Senators Frederick C. Walcott and Key Pitman, members of the Senate Wildlife Committee.

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Redington Reports on Wild-Life Administration

Progress in wild-life research, in the conservation of useful animals and birds, and in the control of injurious species, is indicated by Paul G. Redington, chief of the Bureau of Biological Survey, in his annual report to the Secretary of Agriculture.

Mr. Redington's report surveys the program of the bureau in the light of its forty-five years of research, conservation, and control activities. The events of outstanding importance during the year are as follows:

The Biological Survey discovered that the "duck sickness" prevalent in the West is caused by bacteria and not by alkaline poisoning. A cooperative study of upland-game bird diseases was begun in Virginia. To coordinate these and related studies, all wild-life disease investigations of the bureau were consolidated in a new unit. The bureau started a cooperative study of the muskrat in Maryland.

The bureau completed the survey of 1,796,158 acres of land recommended as suitable for migratory-bird refuges, and the Migratory Bird Conservation Commission authorized the purchase of four additional areas recommended by the bureau for refuges. Amendments to the migratory-bird treaty act regulations reduced the kill of wild fowl, by shortening the season fifteen days—after the close of the fiscal year the season was cut to one month—closing specified areas to goose hunting, limiting the number of live-goose decoys at a stand—including brant in the goose bag limit—and prohibiting mourning-dove shooting over baited fields. The bureau reintroduced musk oxen to Alaska by transplanting a herd of thirty-four from Greenland.

Predatory-animal and rodent control work was improved by the establishment of a regional plan of supervision. Congress approved a ten-year control program, including authorization of appropriations of not to exceed $1,000,000 annually.

Conservation through education and law enforcement, says Mr. Redington, has resulted from the migratory-bird treaty negotiated with Great Britain in 1916. This obligation was for a fifteen-year period, with the proviso that it should continue automatically thereafter from year to year. There has been no serious demand for lessening the restrictive terms of the act or for liberalizating its hunting provisions.

Accomplishments in making this treaty effective are summarized as follows: (1) Continuous protection to migratory nongame birds and to certain species of game birds that had become seriously depleted; (2) prohibition of the sale and spring shooting of migratory game birds; (3) establishment of close-season districts based on the times of migratory flights; (4) establishment of maximum daily bag limits; (5) limiting the methods and means for taking migratory game birds; (6) restricting the hours of hunting; (7) limiting to two days' bag the number of birds that may be transported in interstate commerce in a calendar week; (8) placing most of the shore birds in the close season; (9) reducing the bag limits on ducks and geese and limiting the number that may be had in possession; (10) encouraging the propagation of waterfowl in captivity under permit; and (11) limiting the possession of migratory game birds to a period not exceeding ten days after the end of the open season.

"The most effective Federal action to maintain waterfowl," says the report, "has been the prohibition of sale of migratory game birds. This action removed the incentive for commercialized exploitation of these birds by market gunners. This accomplishment together with the elimination of spring shooting fully justifies the intervention of the United States Government."

Federal acquisition of bird-refuge lands has a two-fold objective: (1) Establishment of sanctuaries, to preserve and improve the natural environment essential to waterfowl, particularly in areas where long droughts have seriously reduced their numbers; (2) acquisition of lands, in many cases of low productive value, thereby distributing money to landowners who otherwise would have little opportunity for sale. This has already helped somewhat to relieve unfavorable economic conditions.

The report calls attention to the expansion in recent years in the bureau's economic functions, including leadership in the control of injurious forms of wild life and research on fur farming, rabbit raising, and the reindeer industry. The bureau, Mr. Redington explains, seeks to serve the best interests of the animals and birds and also of the people. It works for the preservation of valuable, interesting, and harmless animals and birds, experiments in the propagation of those valuable in captivity, and leads in the cooperative control of species that locally become economically injurious. The idea of extermination of any form, he emphasizes, is abhorrent, though misinterpretation may lead to an impression in some quarters that the bureau seeks to exterminate some species. The bureau is convinced that, though some forms must be curbed, the perpetuation of representatives of all forms in their natural habitats will lead to an increased appreciation of their esthetic and economic importance.

In order that its control practices might be fully understood, the Biological Survey proposed a joint investigation by the Bureau and the American Society of Mammalogists. The substance of the majority of the reports was that the bureau's employees are responsible men and that in general poison was found to have been so placed as not to endanger seriously the smaller fur-bearing animals.

Conference Urges New Land Policy

The Land Utilization Conference called by the Secretary of Agriculture Arthur M. Hyde, at Chicago, late in November, made nineteen recommendations directed toward reforms in the present methods of land use.

It was recommended that the grazing lands on the Public Domain be organized into public ranges and administered by a federal agency similar to and in coordination with the National Forests. The conference went on record against expansion of the farming area by federal reclamation until agricultural conditions justify it, and in the case of marginal or submarginal lands, it approved the principle of public acquisition of such lands by either federal or state governments when private utilization is no longer possible. It was urged that the Federal Government take the lead in unifying state and federal programs for handling tax delinquent land.

The conference recommended that land development enterprises be licensed and regulated and that the Homestead Acts be so administered that only lands capable of providing a decent living be released to the public for farming. It also asked that steps be taken to outline and initiate a program of soil conservation.

The remainder of the resolutions asked that the proper authorities undertake an inventory of land resources and classification of soils, especially in submarginal areas, that research workers study possible decentralization of industry from the viewpoints of land utilization and that more study be given to all factors involved in regional agricultural competition.

To convert these resolutions into established facts the conference agreed on the creation of two committees, one an advisory committee of fifteen federal and state experts and the other a legislative committee of thirty-three members representing the leading farm organizations.

Ask the Forester?

Forestry Questions Submitted to The American Forestry Association, 1727 K St., N. W., Washington, D. C., Will be Answered in this Column. A Self-Addressed Stamped Envelope Accompanying Your Letter will Assure a Reply.

QUESTION: Do trees help in the correction of nervous disorders?—*H. L. H., Maryland.*

ANSWER: Trees may assist in the correction of nervous disorders by reducing some of the sources of irritation. This may be found in their ability to reduce the force of the wind, to absorb sound and so reduce noises. The light reflected by the leaves and trunks is usually softer than direct sunlight and there are other undefinable aesthetic qualities to be found among trees which are soothing to many people.

QUESTION: We are endeavoring to secure information that may pertain to the health giving qualities of trees. It is, I believe, a generally accepted fact that any locality abounding in trees is regarded as being a healthy spot. Any information or suggestions you can make along these lines will be keenly appreciated.—*A. J. J., New Jersey.*

ANSWER: This question was referred to the Forest Service and the following is quoted from their reply: "The contribution of trees to health is, in many cases, somewhat indirect. The forests ameliorate extremes of climatic conditions, create uniform streamflow, and control erosion. In denuded and devastated country the soil is seriously eroded, run-off is rapid, streams become silted, water may be scarce, and conditions may be such as to be deleterious to general health. Stagnant water and unsanitary conditions of drainage may occur. These conditions are not common in a forested region.

"Trees absorb carbon dioxide from the air and emit oxygen in the process of the manufacture of their plant foods. This is, of course, of benefit to humanity, but it is not possible to say that small areas or individual trees, per se, contribute very materially in this one way to healthful conditions over a restricted area. It is probable that only to the more extensive areas of forests, rather than individual small plantings, can we attribute distinct manifest contributions to human health." Reference was made to two Department of Agriculture bulletins,—"Forests and Water in the Light of Scientific Investigation" and Farmers' Bulletin No. 1405, "The Windbreak as a Farm Asset."

QUESTION: How do the forest fires of 1930 compare with those of the previous year?—*R. F. B., Illinois.*

ANSWER: During 1929 forest fires burned over a total of 87,583,920 acres and did an estimated damage of $102,055,400. In 1930 fires burned a total of 52,266,460 acres and the damage was estimated at $65,968,350.

QUESTION: What can I do to shape small grafted blue spruce? Can they be pruned? Is there any book on the subject?—*R. R., N. Y.*

ANSWER: Spruce and fir trees can be pruned to shape them and also to make the foliage more dense. Care must be taken not to prune them too severely. "Cultivated Evergreens," edited by Liberty Hyde Bailey and published by MacMillan and Company, has a brief discussion on pruning.

QUESTION: Does the evaporation from the leaf surface help to draw the water and other substances through the trunk of a tree and distribute it throughout the tree, or does the process of osmosis do all the work?—*K. S., Pennsylvania.*

ANSWER: Evaporation from the leaf surface probably helps to draw water and other substances in solution through the trunk of the tree and distribute it. At the same time, capillary attraction and osmosis helps, but none of these is wholly responsible for the distribution of sap through a tree. There is a force greater than all which has never been satisfactorily explained which pumps the sap from the roots to the top-most branches of the highest tree. In the case of your Pennsylvania trees there are few over 110 feet high, but with the redwoods there are some over 300 feet. One can best explain sap flow by the fact that the tree is alive with millions of tiny cells set end to end through which the sap circulates.

QUESTION: When should ginkgo nuts be gathered, how should they be cared for prior to planting, and when and how should they be planted?—*C. O. S., D. C.*

ANSWER: The nuts can be gathered anytime when they are ripe which is during October. One way of caring for them is to soak them in a weak solution of lye which helps remove the vile smelling fleshy covering. Afterward they can be spread out to dry, placed in cloth sacks and buried through the winter in a sandy, well drained site. Next spring the seeds should be planted in a garden and the seedlings grown for one or two years before transplanting.

QUESTION: Which of the countries of South America now maintain or seem likely to institute a governmental forest service?—*W. K. B., North Carolina.*

ANSWER: The Pan American Union states that several countries are now and have always been active in the development of their forests, and it would be difficult to say that any of them is not carrying on forestry work.

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National Parks Aid Unemployed

Determined efforts made during the past year to relieve local unemployment, and the importance of acquiring the few additional lands needed for National Parks and Monuments before the next boom period, which in all probability will inflate land values beyond all possibility of governmental acquisition, were two points particularly emphasized by Horace M. Albright, Director of the National Park Service, in his annual report to the Secretary of the Interior.

"The Service activities in protection and operation of the parks and monuments, maintenance of improvements, and construction of new projects," Mr. Albright stated, "contributed substantially to unemployment relief. The average number of per diem employees on the monthly pay roll for the period from January 1, 1931, to September 30, 1931, was 1,532, ranging from a minimum of 184 employees in January to a maximum of 3,008 in July."

Referring to the fact that several scenic areas of unusual magnificence still remain outside the National Park and Monument system and should be added thereto, Director Albright said:

"Our Park Service ideals contemplate a National Park system of primitive lands free from all present and future commercial utilization, but, like all ideals, they can not be uniformly attained in this day and age. New National Parks are likely to be few in number. In regard to them, there is no reason to believe that it will be any easier to secure ideal organic acts establishing future National Parks than it was to attain the ideal in earlier legislation."

Travel to the National Parks and Monuments this year increased greatly, Director Albright stated. Total travel to both the parks and monuments amounted to 3,544,856, as against 3,246,656 for the travel year ended September 30, 1930. This is a net increase of nine per cent. Travel to the National Parks alone reached the total of 3,152,845, a gain of fourteen per cent over the previous year.

Most of the park and monument visitors last season were traveling on very limited budgets, the great majority traveling in their own automobiles and a greatly increased percentage patronizing the housekeeping camps or using their own camping equipment. Under these conditions the volume of business handled by the operators of the park public utilities reached the lowest mark in some years, he said.

Two new National Monuments were established during the year, one on the eastern seaboard and the other in the Far West. The Colonial National Monument, in Virginia, was established by Presidential proclamation, while in Arizona the Canyon de Chelly National Monument was established, with an area of 83,840 acres.

While no new National Parks were established during the year, Director Albright points out that boundary adjustments were made at Bryce Canyon, Utah, and Wind Cave, South Dakota, National Parks, and also at the Petrified Forest, Arizona; Aztec Ruins, New Mexico; Pinnacles, California; and Katmai, Alaska, National Monuments. Through the addition of the new monuments and the various boundary changes, the total area of the National Park and Monument system was increased by 1,780,013 acres, making a total of 12,119,579 acres.

Director Albright stated that important adjustments in the boundaries of several National Parks should be made promptly, in order to insure proper development and to preserve important areas. Unless some of these adjustments are made in the near future, he stated, it may be impossible to add several areas of National Park caliber to the system.

He especially stressed the addition to the Grand Teton National Park, in Wyoming, of important lands now in trust for this purpose by the Snake River Land Company, which was organized by John D. Rockefeller, Jr. Over 30,000 acres of land are now so held for transfer to the United States for park and game-preserve purposes when Congress shall have enacted the necessary legislation.

THE BRIDGE OF THE GODS

(*Continued from page 6*)

centuries before the forest grew in the bottom lands which was submerged but a century and a half ago.

This conglomerate is of such friable character that it could not have supported a tunnel which would have necessarily been three miles in length. Further, a careful search has failed to reveal any evidence of such a tunnel. So after a long and careful search the riddle has finally been solved and corroborated by a report of a survey made by the State of Oregon. Briefly, the Bridge of the Gods as the Indians picture it never existed, and therefore the Cascades of the Columbia cannot be attributed to its fall. It is obvious then that the awe-inspiring cataracts are due to the diversion of the river by a landslide from the north.

It is well known to geologists that there have been a number of elevations and subsidences of the surface of the earth in this region, a fact which is proved by the enormous masses of river deposits now high above the surface at great distances from the Cascades. The gorge was gouged out when the surface was much higher than it is now and during a later subsidence volcanic breccia, was deposited across the valley, long before the overlying basalt and before the Columbia was formed in its present course. These deposits appear to have been about two hundred feet in depth; and when later the surface arose the river cut a passage through the breccia about two miles to the north of its present course, also scouring out a channel in the solid basalt, about fifty feet deeper than the present channel. This enabled the tides from the ocean to reach The Dalles, just as the Indians claimed.

Since the breccia is easily washed, the streams from the mountains cut little vales through to the river. This must have been the condition about 1773 when occurred the great "battle between the three mountains" as the Indians have it. The details of this story vary greatly, but the legend has it that beautiful Mount St. Helens was the wife of lofty Mount Adams, each being north of the river. They had some domestic unpleasantness and Mount Hood, across the river, unwisely attempted to interfere. Thereupon both husband and wife threw rocks and fire at Mount Hood which responded in kind with vast clouds of smoke and unearthly noises. This caused the earth to shake with terror, and in

the upheaval the Bridge of *To-mah-na-wus* fell and stopped the river.

It could be that during a volcanic eruption the original Table Mountain crumbled and fell into its own interior, while almost inconceivable masses of rock were pushed outward, like the dumping of a load of coal. Many geologists, however, believe that the mountain fell in during a heavy rainstorm or an unusual rainy reason. This was due to yielding by the water-soaked breccia on the south under the weight of the overlying lava flow. It not only filled the opening which the river had excavated but heaped above it a pile of the breccia which spread almost to the cliffs on the south. The appearance is that of a lot upon which carloads of earth have been dumped, except that the scale is beyond power of description. This completely blocked the river for the moment and the Indians had their traditional Bridge of the Gods, across which they walked without "wetting their moccasins." That "bridge" is there still and the writer has crossed it many times. It is not a bridge, of course, but a mass of gravel and clay heaped up three hundred feet above the old channel.

Since the surface of the slide became uneven, it left many low places in which the rain water gathered. Thus can be explained the lakes. Detached masses of broken basalt "floated" down on this conglomerate and formed the patches of rock which are scattered over the surface as though some great rock crusher had spilled them from the clouds.

This explains why the river was stopped and the water backed up so as to drive the Indians away from their river villages into the mountains, and also why Celilo Falls ceased to function. Since during that period no salmon could ascend the river there was naturally a dearth of fish at regular intervals for many years.

It has been estimated by the State of Oregon that upwards of one or even two billion cubic yards of material slipped down in that almost unimaginable slide, which has not yet ceased. For around Table Mountain and Red Bluff today are heard the most unearthly noises, while miles of forest trees are leaning at such an angle as to show that the earth has subsided in recent years. At present these "earth flows" are too slow to produce any marked change in the stream but at times such as the one recorded by the submerged trees the movement was no doubt accelerated or even catastrophic in its suddenness.

And about the submerged trees, it is quite evident that the debris from the great slide, or perhaps the last of several great slides, was pushed almost to the cliffs on the south side, leaving but a narrow space of the original conglomerate, which not being permeable to water held back the river until it had risen two hundred feet or more and overflowed close to the cliffs. The friable nature of the conglomerate is such that the accumulated waters quickly swept away the obstruction and formed the present day channel down to the ledge of solid basalt, probably fifty feet above the original bed of the river. This left the water above the obstruction like a long pond in which the trees growing along the old bottom land stood to arouse the atonishment of all the early travelers. The chart of the government soundings clearly indicates a deep channel along the north shore. Three miles beyond may still be seen the remnants of the old river bed. The heaped up mass of conglomerate between these points formed what the Indians termed the Bridge of *To-mah-na-wus.*

When the waters finally overflowed and swept away the gravel it must have caused a mighty flood on the lower river, which may explain two difficulties historians have encountered. One is that while the water above the bar at the mouth of the Columbia was always very shallow until the jetties were constructed, the Spaniard Heceta, in 1775, found the depth nearly one hundred and forty feet. If he had arrived just at the time the river washed away the obstruction at the Cascades it would account for the extraordinary depth. The other difficulty is that Heceta's unpublished chart, now in Spain, shows the width of the entrance of the river to be nearly twelve miles, instead of the four reported by other explorers. If the flood had been at that time it would probably have exhibited just such phenomena, inundating the lowlands and making Cape Disappointment an island, exactly as Heceta reported it. If this surmise is correct it would place the date of the washing away of the dam and indicate that the terrible landslide occurred about 1773 or 1774, which agrees with all known conditions.

The arrival of the first vessel with white men just as the river was in flood stages would also explain the superstition among the Indians that they were responsible for the failure of the salmon to run in the years to come.

But still it is an interesting study, this mystery of the Bridge of the Gods, even though its explanation appears simple enough. But the Indians still will tell you that their symbol of power reigned for years in their *To-mah-na-wus,* the bridge of the supernatural, and there are many white men today who believe with their red brother. So be it, and if one likes to conjure perhaps they are right, perhaps the scientific conclusions of today are wrong. Perhaps that great rainbow arch did lift in all its supernatural majesty across three miles of water and bottom-land.

For in spite of the vast multitude of humanity and the immense amount of commerce steadily flowing through the pass, the scene is still that of a forest primeval—a wilderness of trees and precipices, of mountains piled upon mountains. Except for the rotting away of the submerged forest and a few places blasted in the rocks for the railroad and highway, the physical condition of the Cascades is much the same as when it was viewed by the earliest white traveler. So if one disbelieves science, and has the urge for a fascinating adventure, they can take pick and shovel, charts and references, and solve for their own conviction the mystery of the red man's Bridge of *Tomah-na-wus,* or the white man's Bridge of the Gods.

Elk Commisson to Broaden

At a meeting of the Commission on the Conservation of Elk in Jackson Hole, Wyoming, held in New York on November 30, upon the call of its chairman, Ottomar Van Norden, it was decided to extend the scope of the commission to include studies looking to the protection and perpetuation of elk throughout the country. Heretofore the Commission has confined its studies and recommendations to the Jackson Hole herd, but it was felt that the Commission can function in a constructive way in helping to work out conservation programs for other elk bands in the western states. This action followed a review of reports from western members of the Commission of conditions prevailing in the Jackson Hole country. Mr. Van Norden asked to be relieved as chairman of the Commission and I. H. Larum, of Valley, Wyoming, was elected to fill his place. Ovid Butler was re-elected secretary of the Commission.

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A FOREST SAVED
IS A FOREST RAISED

Conservation Leaders in Congress

(*Continued from page* 21)

situations. As a student at Leland Stanford University, Charles McNary worked his own way.

Behind him is a long career as a lawyer. He was admitted to the Oregon bar in 1898 and practiced with his brother, John H. McNary, until 1913. From 1906 to 1913 he served as deputy district attorney for the Third Judiciary District of Oregon. He was a justice of the Supreme Court of Oregon from 1913 to 1915 and at the time of his appointment to the United States Senate was chairman of the Republican State Central Committee.

Senator McNary plays tennis and in earlier days wielded a mean baseball bat. Today his principal pleasure is golf, when intermissions from work present themselves. He also enjoys riding about the countryside.

Modern in his viewpoint, he looks upon forestry with a practical as well as a sentimental eye and is a great believer in scientific experimentation and research. He gave full backing to the Pepper-Luce bill, which provided funds with which to begin purchasing land in the District of Columbia for a National Arboretum. Funds were exhausted before the land required could be purchased and during the last session he worked to get enough money to complete the purchases and begin actual work on the project. Failing to get it, he has expressed his intention to carry the battle into the December session.

He was one of the first to realize the value of airplanes in combatting forest fires and helped establish the first air patrol.

Hand in hand with his interest in forestry and reforestation, goes an interest in other phases of conservation. Meritorious measures dealing with the preservation of wild life, the protection of rivers, lakes and streams from pollution, and the establishment of suitable watersheds and improvement of the National Park system can always count upon his support. In addition to his chairmanship of the Agricultural and Forestry Committee of the Senate, he is a member of the Commerce, Irrigation and Reclamation, Public Lands and Surveys Committees.

Of sunny disposition, Senator McNary is known as one of the best-loved men on "The Hill." He is a chronic whistler of popular tunes. His little philanthropies he tries frantically to cover up along with other human characteristics which he regards as "nonsense."

Like Governor Pinchot, of Pennsylvania, he regards fish with a friendly eye and makes pets of them. On his farm he keeps a trout pond which he visits often, taking with him a fish banquet of ground liver. There is also a particular tree in which he takes great pride. It is a majestic black walnut, measuring nearly eleven feet in girth which stands within a stone's throw of his door. This tree has attained the highest social distinction to which any tree may aspire—a place in The American Forestry Association's Hall of Fame.

An inseparable companion of the Senator, when he is at home, is his old setter dog, Muggins, now thirteen years old. When Muggins was ill not long ago he made inquiries by telegraph as to her condition, though he would never, never tell you that himself. Nor would he tell you that all of the Capitol employees, from the elevator boys on up, regard him as their personal friend and run to him with their troubles because they know he will help them.

His pet aversion is publicity and he dislikes being interviewed. He is likely to turn you over to his very capable secretary, after avoiding you no end, and then come slipping back into the room, suspicious of what "nonsense" she may be relating. When a few questions are directed at him he will answer them explosively or maybe refuse pointblank to do so, and at least twice during the ordeal he will get up and run away, whistling a tune. When he comes back he looks surprised to find you still there, but his personal modesty is part of his charm, his sense of humor great, and you are sure to like him.

(EDITOR'S NOTE: *This is the first of a series of articles about conservation leaders on Capitol Hill. Others will follow from time to time.*)

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January, 1932

The Garden in Winter

(*Continued from page 40*)

to the various types of soil and climatic conditions. Spruces have spreading roots growing in shallow soil while the pines have long roots which can penetrate very deep in search of water. Each has its preference yet both will grow in a variety of situations. Extremes of wet or dry soils are not pleasing to either, although the spruces are more tolerant of moisture than the pines. Only one or two species of pine can endure an excess of water—the *Pinus resinosa*, or red pine, frequenting white cedar swamps, and *Pinus rigida*, or pitch pine, which is at home in both wet and dry locations.

The arch enemy of white pine is the blister rust, a fungous disease which attacks the trunks and branches of the trees, stunts their growth and spoils them for commercial purposes. This is a disease which needs an intermediate host, the disease living for a time on gooseberries and currants. Presumably the gardener cannot have the penny and the cake. If he wants white pines in their pristine beauty he must consign his gooseberries and currants to the flames unless the garden patch is far removed from the evergreens.

There are many gardens too small for the monarchs of the forest, so smaller conifers must be used. Some are dwarf forms of the pines and spruces, some are slow growing, and others are capable of being kept within bounds by the judicious use of the pruning shears.

There is an attractive pine of slower growth seldom reaching more than twenty-five feet in cultivation. It resembles the white pine but is of denser and more compact growth. It is the Swiss stone pine or *Pinus cembra*, not a native of America but proving to be a valuable acquisition.

One must be careful to avoid grotesque shapes. Gardens should not be museums. Among the satisfactory evergreens for small gardens are the various forms of the American arbor vitae, *Thuya occidentalis*, and the junipers, which can be obtained in a variety of forms. Because the junipers frequent roadsides they must not be despised for ornamental purposes. They grow favorably on limestone soil which does not make them a boon companion for rhododendrons or other members of the heath family, for they like an acid soil. The common juniper has many forms to its credit, long and short, broad and thin, making the species a valuable one for ornamental plantings. *Juniperus virginiana*, which resembles the common juniper in many ways, is a large tree sometimes reaching a height of one hundred feet. *Juniperus virginiana glauca*, the silver red cedar, is a particularly pleasing variety and if one is partial to blue-grey evergreens the winter garden should certainly contain some of these. The European species are mostly forms of the common juniper but there are distinct Chinese and Japanese junipers which can be grown in American gardens.

In addition to the spruces there are several other conifers which will endure shade, most important of which are the Canadian and Carolina hemlocks and the Canadian yew, or ground hemlock. The latter is not a tree, rarely growing six feet in height. It is very hardy and will grow under the shade of other trees.

The Carolina hemlock has been called the "handsomest conifer grown in New England." In cultivation it grows from thirty to fifty feet high but it is clothed to the ground with long, sweeping branches. It is considered hardier and better suited to the trying conditions of the city atmosphere than the Canadian hemlock, most familiar to the majority of gardeners.

Through the Lens

(*Continued from page 27*)

much less exposure than other subjects, due to the abundance of light in the subject itself. To overexpose tends to flatten out the shadows, and it is only occasionally that a snow scene can be treated in a flat decorative way. In such cases color correction is not necessary.

"The usual disappointment comes from the fact that the print does not show the modeling seen by the eye. This is usually due to failure to register the blues and violets, which must be accomplished by the use of the ray filter on color sensitive film or plate, such as panchromatic or orthochromatic. A K^2 Eastman ray filter is not expensive and is imperative in work with snow or clouds. It will also improve all landscape work. As the use of the filter will increase exposure beyond the steadiness of hand camera work, a tripod should be used.

"The average snow scene should be high in key and full of soft delicate graduations.

"Soft-focus lenses appear to add depth to most wood interiors, giving a crystalline quality quite in keeping with snow scene subjects.

"The lens must be watched in very cold weather as a breath may freeze onto the lens and ruin the sharpness of focus.

"Watch the behavior of the shutter as it will refuse to operate when very cold.

"With the short days of winter beware of underestimating the yellowness of morning and afternoon light. If a very warm colored glow, due to a low sun, is present remember that yellow light is much slower than the high white light of midday and give more exposure. The ray filter helps this condition, so always use it.

"Always have good areas of shadow to contrast with areas of light. This increases the whiteness of the snow.

"If a hand camera, as an ordinary Kodak, use the new Verichrome film and give as short an exposure as the subject will allow."

Summing up, Mr. Akers gives five things to remember when the snow picture is to be made. (1) Use tripod. (2) Use color filter, K^2. (3) Make proper exposure. (4) Work toward the source of light. (5) Print on soft grade of paper.

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Kingtown Pegasus

(*Continued from page* 15)

was three animals instead of my two. I cal'late somebody's critter has strayed into my pasture, I says to myself, but as they drew nearer I saw the last animal in the file warn't a cow but a hoss. Jest then he stopped about thirty rods off an' the cows come on up to the gate. I let them through an' started to saunter over to see whose hoss he was for he was a dandy with long clean limbs, an' as handsome a head and neck as I ever saw, an' snow white all over. But I couldn't get a step nearer to him. Every time I put a foot for'ard he drew one back. Even my ole hat held out like a box of oats didn't fool him. So I went back to the cows and closed the gate, decidin I'd hold him in the pasture 'til I went down street an' asked about him. Hold him! It makes me laugh now.

"He had gone back clear across the pasture an' was standin' in the little grove of birches, which straggled out of the evergreen forest making a little peninsula, tense, every muscle tight strung, and poised like a pointer dog. His long sharp ears were pricked forward, his neck arched, an' even at the distance I could tell that his fine nostrils were wide an' quiverin'. It was as if he was eagerly expectin' somebody that he'd been waitin' for a long time an' loved almightily. Then suddenly out of the misty fringe of the forest on the other edge of the pasture came a human figger, a slim tall girl, walkin' in rhythm with the swayin' of the tall grass an' of the tree tops, an' the curlin' mist as the dawn wind caught it and carried it away. She wore a short little skirt an' a jacket, an' on her head was a little hat of felt made to look like the helmets the Greek sodgers used to wear in the old times. She swung across the pasture like a Highlander marchin' to the skirl of bagpipes. Man an' boy, there was music in that walk! I could see now who the hoss had been waitin' for. He let out a neigh that rang on the clear mawnin' air like a trumpet call an' rushed to her full tilt, to come to a stand beside her with all four feet ploughin' the turf like a cowpony. Lightly the gal brushed his nose with her lips an' ran a little hand along his neck. He pushed out his fore-feet, lowering his neck and withers like the dancin' hosses at the circus do, and takin' holt on his mane she vaulted onto his back light as a thistledown floatin' to the ground.

"Then I got the biggest jolt of my life, a jolt that set me gawpin' with a numb mind and weak knees, for that hoss all of a sudden sprouted a pair of wings from his shoulders just in front an' a little above where the gal's knees pressed agin' his withers. He waved them slowly to and fro three or four times as if to see they was all right and in kilter, beautiful wings of long white feathers that glistened. I tried to move to run for'ard to ask the gal who she was; I tried to shout, but my knees wouldn't gear and my throat was choked with a junk of cotton. Three times the beautiful wings floated back an' forth, and then spreadin' them like airplane wings the white hoss bunched his feet together, kicked out an' took to the air!

"It warn't but a second until they were floatin' over the treetops where the first rays of the sun shootin' over the mountains at the same moment caught them fair. Then I made out for the first time who the gal was—it was the lady poet from Boston! My knees gave clean out an' I grabbed holt the gate post to keep standin'. With one hand grippin' the silvery mane she flung out her other arm in a wide graceful salute. 'Goodbye, my beautiful mountains! Goodbye, my lovely maples! You'll be burnin' in my heart until next year'! And in another second she and that hoss had sailed clean on out of sight over the mountain."

WHO'S WHO

Among the Authors in This Issue

J. N. Barry

J. Neilson Barry (*The Bridge of the Gods*) was educated for the ministry in New York and devoted fifteen years to missionary work. Recently he became interested in research work and the story he presents in this issue is the result of his own investigations. His chief joy, he writes, is to ferret out difficult historical problems. He makes his home in Portland, Oregon.

H. H. Chapman (*Public Ownership of Forest Land*) is Professor of Forest Management at the Yale Forest School and one of the leaders in the forestry movement in America.

Alfred M. Bailey (*Snowy Egret*) is Director of the Chicago Academy of Sciences and one of the foremost writers on bird life in the country. His investigations have disclosed much of the life of North American birds.

Charles R. Hursh (*The Forest Legion Carries On*) is associated with the Appalachian Forest Experiment Station, Asheville, North Carolina. He has been engaged in scientific investigations with plants since 1915, carrying his search into many parts of North America, Europe and Africa.

Alma Chesnut (*Conservation Leaders in Congress*) is a writer of outstanding ability, and was at one time associated with American Forests. A native of Maryland, she was formerly connected with the *Baltimore American*, and early this year went to Europe to do a series of articles for magazines and newspapers.

Paul Griswold Howes (*Dominica—A Botanical Paradise*) is a tropical plant explorer of national recognition. In 1913 he went into the Andes with the American Museum of Natural History. Later he joined William Beebe in South America, and in 1925 was leader of the Dominican Expedition. In 1919 he was made curator of natural history at the Bruce Museum, Greenwich, Connecticut. He is the author of three books.

George A. Simmons (*Strange Things in Wild Life*) makes his home in Indiana but most any place in the outdoors satisfies him, he writes. He says he is a lover of nature and interested in anything that swims, flies, walks, or crawls.

W. Gorrell, Jr. (*Winter Climate in the Mountains*) has lived in Wyoming for eighteen years, knows and loves the land above timberline, calls photography and the collection of firearms a hobby, and writes a story every now and then.

Frank P. Cartwright (*Wood—Its Uses*) is Chief Engineer of the National Lumber Manufacturers' Association; Wakelin McNeel (*A Forest Page for Boys and Girls*) is Assistant State Club Leader of Wisconsin, with headquarters at Madison; Charles G. Wilson (*Kingtown Pegasus*) is a well known writer, making his home at Kingfield, Maine; and Clara M. Boltz (*The Garden in Winter*) is a landscape architect at Philadelphia.

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of streamflow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

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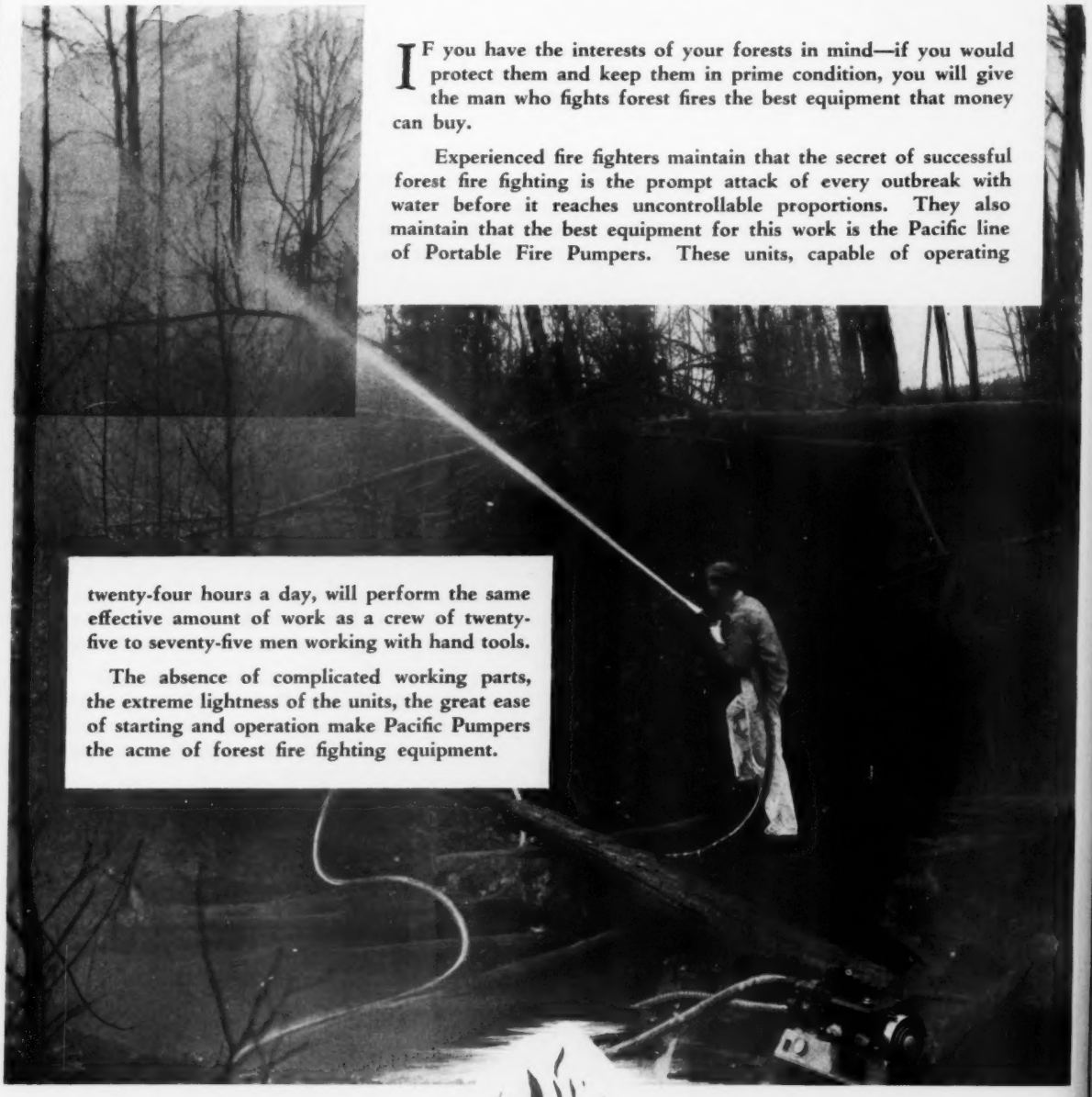

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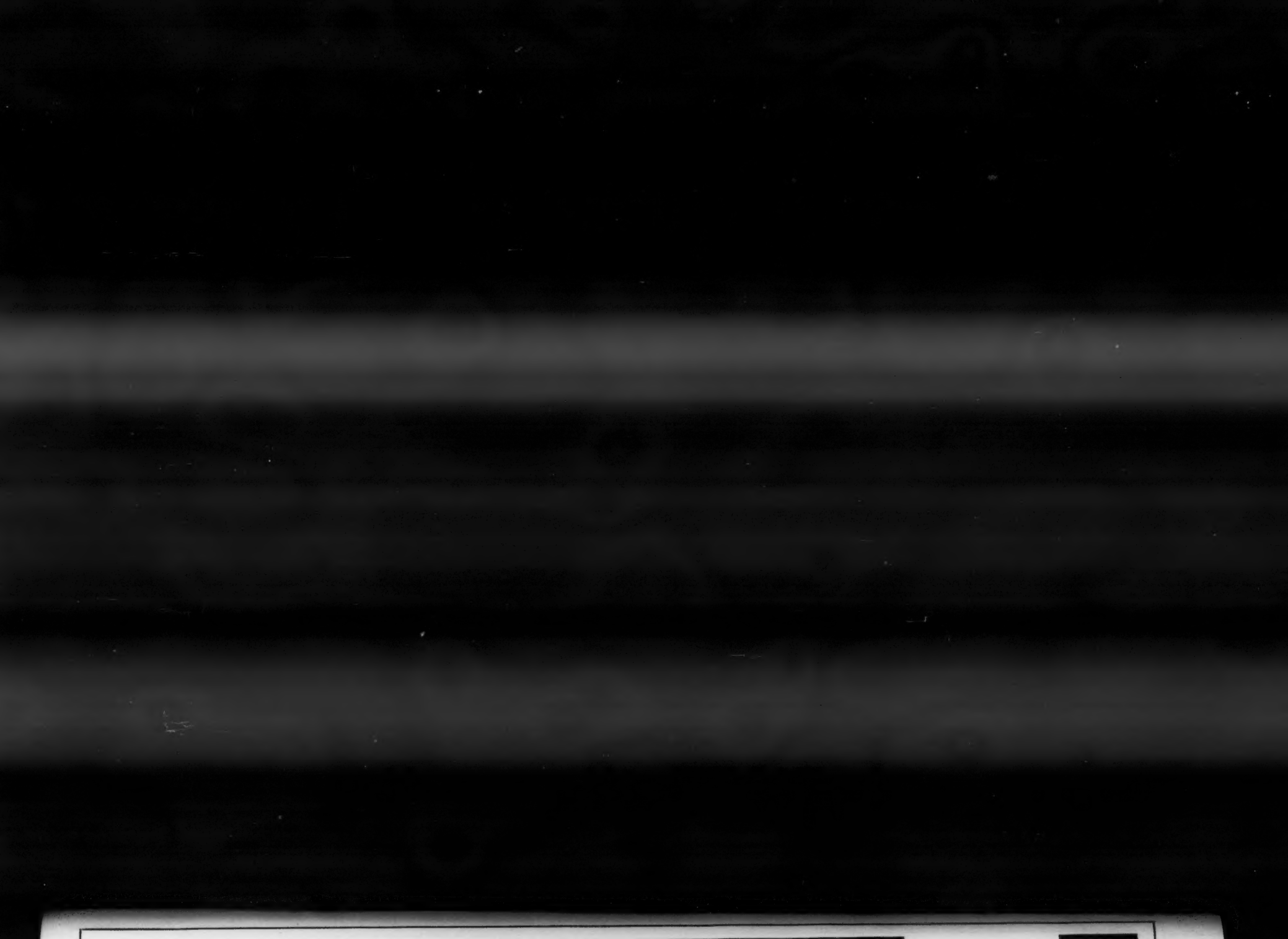
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